Universal IP

AT Commands Reference Guide

Universal IP AT Commands Reference Guide for the following products:

SocketModem® iCell (MTSMC-G2-IP, MTSMC-G2-GP)
SocketModem® iCell (MTSMC-C1-Nx-IP, MTSMC-C1-Nx-GP)
SocketModem® IP (MT5692SMI-IP) This SocketModem uses these commands when the modem is in IP mode.
SocketEthernet IP® (MT100SEM-IP)
SocketWireless® Wi-Fi® (MT810SWM-IP)
MultiModem® iCell (MTCMR-G/C/H/E) This MultiModem uses these commands when the modem is in IP mode.

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Revisions

Revision Level	*Date*	*Description*
F	06/24/09	Made one correction on page 27 when *FTP* was cited instead of *TCP* in the *#OTCP*. Removed acronym *UIP* used for Universal IP. Change default for +IRP to 115200; also, listed speeds at 300 to 921600. Moved Telnet commands to "MT100SEM-IP Only" chapter. Added new command AT#VSTATE
	07/15/09	Modified PINGNUM. Added new commands: #ETHIFSTATUS, #UDPDLEMODE. Added the SocketModem MT5692SMI to list of products that use this command set
	07/31/09	Moved #PERSISTENTSOCKET, #RESET, #AUTORESET from Chapter 10 to Chapter 7
G	08/21/09	Added commands for MT810SWM-IP. Reorganized the chapters. Added GPS commands
	09/01/09	Added GPIO Chapter
	11/03/09	Updated for new software and other changes
	11/20/09	Updated GPS Message Syntax and Message Examples. Added GPS Configuration Examples
	12/07/09	Added GPS Application Note
	01/25/10	Added an important note about syntax to #PUTMAIL
H	03/04/10	Changed Tech Support information Moved the table under IFC to command ICF Added "Hardware" to Flow Control On Added values to IPDNSSERV Added two more Possible Responses to AT#CONNECTIONSTART Changed format of response text from "OK_Info" to "Ok_Info" Changed the default of #WLANSSID to "mt810swm_disable" Changed the default of #OUTPORT to 0
	03/31/10	Modified DLEMODE and FTPTYPE. Add lists of commands organized by product.

Note: This product used the FreeRTOS.org real time kernel. The FreeRTOS.org source code can be obtained by visiting http://www.FreeRTOS.org

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Technical Support

Please refer to the Copyright/Technical Support page in the product User Guide or Developer Guide.

Contents

Part 1 – Commands for All Universal IP Devices 9

Overview – Lists of Commands Grouped by Product 10
Commands for SocketEthernet IP (MT100SEM-IP) 10
Commands for SocketWireless Wi-Fi (MT810SWM-IP) 11
Commands for SocketModem iCell (MTSMC-G2-IP) 12
Commands for SocketModem iCell (MTSMC-C1-Nx-IP) 13
Commands for SocketModem iCell with GPS (MTSMC-G2-GP and MTSMC-C1-Nx-GP) 14
Commands for SocketModem IP (MT5692SMI-IP) 15
Commands for MultiModem iCell (MTCMR-G/C/H/E) 16

Chapter 1 – General AT Commands for All Universal IP Devices 17
Set Commands 17
AT – Command Mode 17
E – Turn Echo ON/OFF 17
I – Identification 17
V – Terse or Verbose 17
Z – Default Configuration 18
&C – RLSD (DCD) Option Turn On or Off 18
&D – DTR Option 18
&F – Reset Factory Defaults 18
&S – DSR ON or OFF 18
&W – Store Factory Defaults to NVM 19
+ICF – DTE-DCE Character Framing 19
+IFC – Set Flow Control 20
+IPR – Set Serial Speed 20
#AUTORESET - Reset the Processor at a Given Time 20
#DELFLASH – Erase Flash Memory Parameter Values 20
#LEGACYMODE – Legacy Mode Enable/Disable 20
#PERSISTENTSOCKET - Persistent Socket 21
#RESET – Reset Main Processor or Internal Modem 21
Display Commands 22
#VVERSION – Display Software Version 22
#VSTATE – Display Current State of Physical Connection 22
#VALL – Display All Parameters 22

Chapter 2 – SMTP Commands for All Universal IP Devices 25
Set Commands 25
#SENDERNAME – Set Sender Name 25
#SENDERADDR – Set Sender Address 25
#CCRECi – Set Additional Recipient CC 25
#DOMAIN – Set Domain Name of the Sender 26
#RECiADD – Set Email Address 26
#SUBJi – Set Email Pre-Defined Subject Text 26
#BODYi – Set Pre-Defined Email Combinations 27
#SMTPPORT – Set SMTP Server Port 27
#SMTPPW – Set SMTP Password 27
#SMTPSERV – Set SMTP Server Address 27
#SMTPUN – Set SMTP User Name 28
#SENDMAILi – Send Mail without Interactive Mode 28
#PUTMAIL – Send Mail to Recipient with Interactive Mode 29
#SMTPAUTH – Authentication ON or OFF 30
Display Commands 30
#VSMTP – Display SMTP Parameters 30
#VMAILi – Display Email Parameters for Respective Mail ID 30

Chapter 3 – POP3 Commands for All Universal IP Devices 31
Set Commands 31
#POP3HEADERMODE – POP3 Header 31
#POP3PORT – Set POP3 Server Port 31
#POP3PW – Set POP3 Password 31
#POP3SERV – Set POP3 Server Address 31
#POP3UN – Set POP3 User Name 32
#GETMAIL – Retrieve Host Mail 32
Display Commands 33
#VPOP3 – POP3 Module Parameters 33

Chapter 4 – FTP Commands for All Universal IP Devices 34
Set Commands 34
#FTPPORT – Enter FTP Server Port 34
#FTPMODE – Enter FTP Mode 34
#FTPTYPE – Specify Data Type 34
#FTPSERV – Specify FTP Server Address 35
#FTPUN – Set FTP User Name 35
#FTPPW – Set FTP Password 35
#FTPGETFILENAME – Set FTP Download File Name 35
#FTPPUTFILENAME – Set FTP Upload File Name 35
#FTPGET – Download Files from FTP Server 36
#FTPPUT – Upload Files to FTP Server 36
#FTPGETPATH – Set Path to Get a File from the FTP Server 36
#FTPPUTPATH – Set Path to Send Files to the FTP Server 37
#FTPAPPEND – Append Data to Server 37
Display Command 37
#VFTP – Display FTP Parameters 37

Chapter 5 – TCP Commands for All Universal IP Devices 38
Set Commands 38
#DLEMODE – Set DLE Mode 38
#TCPPORT – Set TCP Port for Remote Peer 38
#TCPSERV – Set Address of Remote TCP Server 39
#TCPTXDELAY – Time Delay 39
#LTCPSTART – Open Listening Mode 39
#LTCPSTOP – Close TCP Listening Mode 40
#OTCP – Open a TCP Connection 40
#OUTPORT – UDP/TCP Local Port Number 40
Display Command 41
#VTCP – Display TCP Parameters 41

Chapter 6 – UDP Commands for All Universal IP Devices 42
Set Commands 42
#UDPPORT – UDP Port Number 42
#UDPSERV – UDP Server Address 42
#UDPTXDELAY – Delay before Sending UDP Datagram 42
#LUDPSTART – Initiate the UDP Session in Listen Mode 42
#LUDPSTOP – Close UDP Listening Mode 43
#OUDP – Initiate UDP Session in Active Mode 43
Display Command 43
#VUDP – Display UDP Module Configuration 43

Chapter 7 – PING Commands for All Universal IP Devices 44
Set Commands 44
#PINGNUM – Number of PING Requests 44
#PINGREMOTE – IP Address of PING Request 44
#PING – Start PING Request 44
#PINGDELAY – PING Delay Time 44

Display Command **45**
#VPING – Display PING Parameters 45

Part 2 – Commands for the SocketEthernet IP **46**

Chapter 8 – General Commands for the SocketEthernet IP (MT100SEM-IP) **47**
Set Commands **47**
#DHCP – DHCP On or Off 47
#IPADDR – Set Static IP Address 47
#IPGATEWAY – Set Gateway Address 47
#IPNETMASK – Set Subnet Mask 48
#DNSSERV1 – Set DNS Server IP Address 48
#DNSSERV2 – Set Secondary DNS Server 48
#EMACSPD – Set Ethernet Connection 48
Display Commands **49**
#ETHIFSTATUS – View Network Interface Settings 49
#VDNS – Display Configuration of DNS Servers 49
#VIP – View Address Settings 49

Chapter 9 – Auto Discovery Commands for the SocketEthernet IP (MT100SEM-IP) **50**
Set Commands **50**
#AUTODISC – Auto Discovery On/Off 50
#AUTODISCTIMER – Auto Discovery Timer 50
#AUTODISCPORT – Auto Discovery Port 50
#AUTODISCHOST – Set Auto Discover Host Name 50
#AUTODISCUSERNAME – Set Auto Discover User Name 51
#AUTODISCPASSWORD – Sets Auto Discover Password 51
Display Command **51**
#VAUTODISC – Display Auto Discovery Commands 51

Part 3 – Commands for SocketWireless Wi-Fi Devices **52**

Chapter 10 – IP Commands for the SocketWireless Wi-Fi (MT810SWM-IP) **53**
Set Commands **53**
#DHCP – DHCP On or Off 53
#IPADDR – Set Static IP Address 53
#IPGATEWAY – Set Gateway Address 53
#IPNETMASK – Set Subnet Mask 54
#IPDNSSERV – Configure the DNS Server 54
#DNSSERV1 – Set DNS Server IP Address 54
#DNSSERV2 – Set Secondary DNS Server 54
#IPRELEASE – Release a DHCP Address Assigned by the Server 55
#IPRENEW – Renew the DHCP Information from the Server 55
#IPQUERY – Give a Domain Name 55
#IPRESOLV – To Observe Whether There Is a Connection with DNS or Not 55
S0= – Automatic Answer 55
Display Commands **56**
#IPDNSTABLE – Display DNS Table 56
#VDNS – Display Configuration of DNS Servers 56
#VIP – View Address Settings 56

Chapter 11 – General Commands for the SocketWireless Wi-Fi (MT810SWM-IP) **57**
Set Commands **57**
A – Manual Answer of a TCP or UDP Connection 57
S2 – Escape Sequence 57
A/ – Previous Command 57
#BOOTMSG – Enable/Disable Boot Message 58
#WATCHDOG – Enable/Disable Watchdog 58
#WATCHDOGTIMER – Watchdog Timer 58

Chapter 12 – Telnet Commands for the SocketWireless Wi-Fi (MT810SWM-IP) and the SocketEthernet IP (MT100SEM-IP) 59
Set Commands 59
#TELNET – Start/Stop Telnet Session 59
#TELNETPORT– Set Telnet Port 59
#TELNETUSER – Set Telnet User 59
#TELNETPASSWORD – Set Telnet Password 60
Display Command 60
#VTELNET – View Telnet Settings 60

Chapter 13 – WLAN Commands for the SocketWireless Wi-Fi (MT810SWM-IP) 61
Set Commands 61
#WLANSECURITYMODE – Security Mode of WLAN Module 61
#WLANNETWORKMODE – WLAN Network Mode 61
#WLANCOUNTRYCODE – Country Code 61
#WLANSCANMODE – Scanning Mode 62
#WLANSSID – SSID of WLAN 62
#WLANDATARATE – WLAN Transmission Data Rate 62
#WLANIBSSCHANNEL – Channel for Ad-Hoc Mode 62
#WLANCONNECT – Connect with AP 63
#WLANDISCONNECT – Disconnect with AP 63
#WLANENABLE – Auto Connect Module with AP 63
#WLANDOZE= – Moves Module into or out of Power Save 63
#WLANPROFILE – Load the WLAN Profile 64
#WLANPROFILEn=n – Change the WLAN Profile 64
#WLANSCAN – Scan Wireless Networks 64
#WLANUSEPROFILE – User Profile 65
#WLANGETRSSI – Received Signal Strength 65
#WLANACTIVATE – Move Module out of Power Save 65
#WLANROAM – Enable/Disable Roaming 65
#WEP64KEY – Keys for WEP64 Security Mode 65
#WEP128KEY – Keys for WEP128 Security Mode 66
#WPAPSKKEY – Keys for WPA PSK Security Mode 66
#WPA2PSKKEY – Keys for WPA2 PSK Security Mode 66
#WEPKEYID – Set the Default TX Key Index 66
#WLANPOWERSAVE – Enable Power Save at Boot 66
Display Command 67
#WEP? – See the Value of the WEP Keys 67
#WLANPROFILE – Display the WLAN Profile 67
#WLAN? – WLAN Module 68
#WLANASSOCINFO – Display Association Information 68

Part 4 – Commands for SocketModem iCell, SocketModem IP, and MultiModem iCell . 69

Chapter 14 – Commands for the SocketModem iCell, SocketModem IP, and MultiModem iCell 70
Set Commands 70
+WOPEN – Set IP Mode or Modem Mode 70
#AUTHENT – Authentication Type 70
#ANSWERMODE – Set Answering Mode 71
#CALLBACKTIMER – Set Automatic Call-Back Wait 71
#CALLSCREENNUM – Set Caller ID Service 71
#KEEPALIVEMODE – Keep-Alive Mode 72
#KEEPALIVEPORT – Keep-Alive Port Number 72
#KEEPALIVESERV – Keep-Alive Server Address 72
#KEEPALIVEDELAY – Keep-Alive Delay 72
#ATCMD – Set Default Dial Time AT Commands 73
#REDIALCOUNT – Set Connection Attempts Allowed 73
#REDIALDELAY – Set Call Retry Delay 73
#PHYTIMEOUT – Set Inactivity Time 74
#RINGCOUNT – Set Number of Rings/Automatic Operation 74

#DIALN1 – Set Primary Dial-Up Number ... 74
#DIALN2 – Set Secondary Dial-Up Number ... 74
#DIALSELECT – Set Internet Connection Number ... 75
#ISPPW – Set ISP Password ... 75
#ISPUN – Set ISP User Name ... 75
Incoming Call Management Commands ... 76
#ACCEPT – Answer Incoming Call ... 76
#CONNECTIONSTOP – Stop Communication ... 76
#CONNECTIONSTART – Start Communication ... 77
#AUTOCONNECT – Automatically Connect the PPP Link ... 78
#PPPMODE – Set TCP/IP Behavior ... 78
#PPPMYIP – Set IP Address When Using PPP ... 78
#PPPPEERIP – Set IP Address for Remote PPP ... 78
#PPPSERVUN – Set User Name for Remote PPP Client ... 79
#PPPSERVPW – Set Remote PPP Client Password ... 79
#APNPW – Set Access Point Name Password ... 79
#APNSERV – Set Access Point Name ... 79
#APNUN – Set Access Point User Name ... 79
#GPRSCID – Set PDP Context Identifier ... 80
#GPRSMODE – Activate Switching Between GSM and GPRS ... 80
Display Commands ... 80
#DISPLAYIP – Display IP Addresses ... 80
#VPPP – Display PPP Parameters ... 81
#VPHY – Display Physical Parameters ... 81

Part 5 – GPIO Commands ... 82

Chapter 15 – GPIO Commands ... 83
About GPIO ... 83
#GPIO – Enable/Disable and Configure External GPIO Driven Events ... 83

Part 6 – Commands for GPS-Enabled Device ... 85

Chapter 16 – Commands for GPS-Enable Products ... 86
#GPSSERV – Set GPS Host Server Address ... 86
#GPSPORT – Set GPS Host Port ... 86
#GPSPROTO – Set GPS Host Protocol ... 86
#GPSPREFIX – Set GPS Message Prefix ... 86
#GPSURAIS – Set GPS Unique Remote Asset Identification String ... 87
#GPSINTERVAL – Set GPS Server Transmission Interval ... 87
#GPSPW – Set GPS Host Login Password ... 87
#GPSGPGGA – Enable/Disable GPGGA Message ... 87
#GPSGPGLL – Enable/Disable GPGLL Message ... 88
#GPSGPGSA – Enable/Disable GPGSA Message ... 88
#GPSGPGSV – Enable/Disable GPGSV Message ... 88
#GPSGPRMC – Enable/Disable GPRMC Message ... 88
#GPSGPVTG – Enable/Disable GPVTG Message ... 89
#GPSINTERVALLOC – GPS Local Transmission Interval ... 89
#GPSGETMESSAGE – Get Queued GPS Message ... 89
GPS Message Syntax ... 90
GPS Message Examples ... 90
GPS Configuration Examples ... 91
Application Note – GPS NMEA Messages ... 92
Introduction ... 92
NMEA Protocol Overview ... 92
SUPPORTED MESSAGE LIST ... 93
NMEA MESSAGES ... 93
GGA – Global Positioning System Fix Data ... 93
GLL – Latitude/Longitude ... 94

GSA – GNSS DOP and Active Satellites 94
GSV – GNSS Satellites in View 95
RMC – Recommended Minimum Specific GNSS Data 95
VTG – Course Over Ground and Ground Speed 96

Part 7 – Appendixes 97

Appendix A – Response Messages & Error Codes 98
Response Messages 98
Error Codes 99

Appendix B – Response Message Examples 100
Response Messages Examples 100
Sending/Retrieving Email Response Messages 100
FTP: Download / Upload Files Response Messages 102
TCP Socket Response Messages 103

Index 104

Part 1 – Commands for All Universal IP Devices

Overview – Lists of Commands Grouped by Product

Chapter 1 – General AT Commands

Chapter 2 – SMTP Commands

Chapter 3 – POP3 Commands

Chapter 4 – FTP Commands

Chapter 5 – TCP Commands

Chapter 6 – UDP Commands

Chapter 7 – PING Commands

Overview – Lists of Commands Grouped by Product

Commands for SocketEthernet IP (MT100SEM-IP)

#AUTODISC – Auto Discovery On or Off
AUTODISCHOST – Auto Discovery Host Name
#AUTODISCPASSWORD – Auto Discovery Password
#AUTODISCPORT – Auto Discovery Port
#AUTODISCTIMER – Auto Discovery Timer
#AUTODISCUSERNAME – Auto Discovery User Name
#BODYi – Set Pre-Defined Email Combinations
#CCRECi – Set Additional Recipient CC
#DELFLASH – Erase Flash Memory Parameter Values
#DHCP – DHCP On or Off
#DLEMODE – Set DLE Mode
#DNSSERV1 – Set DNS Server IP Address
#DNSSERV2 – Set Secondary DNS Server
#DOMAIN – Set Domain Name of the Sender
#EMACSPD – Set Netmask Address
#ETHIFSTATUS – View Network Interface Settings
#FTPAPPEND – Append Data to Server
#FTPGET – Download Files from FTP Server
#FTPGETFILENAME –FTP Download File Name
#FTPGETPATH – Path to Get Files from FTP Server
#FTPMODE – Enter FTP Mode
#FTPPORT – Enter FTP Server Port
#FTPPUT – Upload Files to FTP Server
#FTPPUTFILENAME – FTP Upload File Name
#FTPPUTPATH – Path to Send Files to the FTP Server
#FTPPW – Set FTP Password
#FTPSERV – Specify FTP Server Address
#FTPTYPE – Specify Data Type
#FTPUN – Set FTP User Name
#GETMAIL – Retrieve Host Mail
#IPADDR – Set Static IP Address
#IPGATEWAY – Set Gateway Address
#IPNETMASK – Set Subnet Mask
#LTCPSTART – Open Listening Mode
#LTCPSTOP – Close TCP Listening Mode
#LUDPSTART – Initiate the UDP Session in Listen Mode
#LUDPSTOP – Close UDP Listening Mode
#OTCP – Open a TCP Connection
#OUDP – Initiate UDP Session in Active Mode
#OUTPORT – UDP/TCP Local Port Number
#PING – Start PING Request
#PINGDELAY – PING Delay Time
#PINGNUM – Number of PING Requests
#PINGREMOTE – IP Address of PING Request
#POP3HEADERMODE – POP3 Header
#POP3PW – Set POP3 Password
#POP3SERV – Set POP3 Server Address
#PUTMAIL – Send Mail to Recipient w/ Interactive Mode
#RECiADD – Set Email Address
#SENDERADDR – Set Sender Address
#SENDERNAME – Set Sender Name
#SENDMAILi – Send Mail without Interactive Mode
#SMTPAUTH – Authentication ON or OFF
#SMTPPORT – Set SMTP Server Port
#SMTPPW – Set SMTP Password
#SMTPSERV – Set SMTP Server Address
#SMTPUN – Set SMTP User Name
#SUBJi – Set Email Pre-Defined Subject
#TCPPORT – Set TCP Port for Remote Peer
#TCPSERV – Set Address of Remote TCP Server
#TCPTXDELAY – Time Delay
#TELNET – Start/Stop Telnet Session
#TELNETPASSWORD – Set Telnet Password
#TELNETPORT – Set Telnet Port
#TELNETUSER – Set Telnet User
#UDPPORT – UDP Port Number
#UDPSERV – UDP Server Address
#UDPTXDELAY – Delay before Sending UDP Datagram
#VALL – Display All Parameters
#VAUTODISC – Display Auto Discover Commands
#VDNS – Display Configuration of DNS Servers
#VFTP – Display FTP Parameters
#VIP – View Address Settings
#VMAILi – Display Email Parameters for Mail ID
#VPING – Display PING Parameters
#VPOP3 – POP3 Module Parameters
#VSMTP – Display SMTP Parameters
#VTCP – Display TCP Parameters
#VTELNET – View Telnet Settings
#VUDP – Display UDP Module Configuration
#VVERSION – Display Software Version
&C – RLSD (DCD) Option
&D – DTR Option
&F – Reset Factory Defaults
&S – DSR On or Off
&W – Store Factory Defaults to NVM
+ICF – DTE-DCE Character Framing
+IFC – Set Flow Control
+IPR – Set Serial Speed
AT – Command Mode
E – Turn Echo ON/OFF
I – Identification
V – Terse or Verbose
Z – Default Configuration

Commands for SocketWireless Wi-Fi (MT810SWM-IP)

#AUTORESET – Reset Main Processor at a Given Time
#BODYi – Set Pre-Defined Email Combinations
#BOOTMSG – Enable/Disable Boot Message
#CCRECi – Set Additional Recipient CC
#DELFLASH – Erase Flash Memory Parameter Values
#DHCP – DHCP On or Off 46
#DLEMODE – Set DLE Mode 31
#DNSSERV1 – Set DNS Server IP Address 47
#DNSSERV2 – Set Secondary DNS Server 47
#DOMAIN – Set Domain Name of the Sender 19
#FTPAPPEND – Append Data to Server 30
#FTPGET – Download Files from FTP Server 29
#FTPGETFILENAME – Set FTP Download File Name 28
#FTPGETPATH – Path to Get Files from FTP Server 29
#FTPMODE – Enter FTP Mode 27
#FTPPORT – Enter FTP Server Port 27
#FTPPUT – Upload Files to FTP Server 29
#FTPPUTFILENAME – Set FTP Upload File Name 28
#FTPPUTPATH – Path to Send Files to the FTP Server 30
#FTPPW – Set FTP Password 28
#FTPSERV – Specify FTP Server Address 28
#FTPTYPE – Specify Data Type 27
#FTPUN – Set FTP User Name 28
#GETMAIL – Retrieve Host Mail 25
#IPADDR – Set Static IP Address 46
#IPDNSSERV – Configure the DNS Server 47
#IPDNSTABLE – Display DNS Table 49
#IPGATEWAY – Set Gateway Address 46
#IPNETMASK – Set Subnet Mask 47
#IPQUERY – Give a Domain Name 48
#IPRELEASE – Release DHCP Address 48
#IPRENEW – Renew DHCP Information from Server 48
#IPRESOLV – Observe -- Connection with DNS or Not 48
#LEGACYMODE – Legacy Mode Enable/Disable
#LTCPSTART – Open Listening Mode
#LTCPSTOP – Close TCP Listening Mode
#LUDPSTART – Initiate the UDP Session in Listen Mode
#LUDPSTOP – Close UDP Listening Mode
#OTCP – Open a TCP Connection
#OUDP – Initiate UDP Session in Active Mode
#OUTPORT – UDP/TCP Local Port Number
#PERSISTENTSOCKET – Persistent Socket
#PING – Start PING Request
#PINGDELAY – PING Delay Time
#PINGNUM – Number of PING Requests
#PINGREMOTE – IP Address of PING Request
#POP3HEADERMODE – POP3 Header
#POP3PW – Set POP3 Password
#POP3SERV – Set POP3 Server Address
#PUTMAIL – Send Mail to Recipient w/ Interactive Mode
#RECiADD – Set Email Address
#RESET – Reset Main Processor or Internal Modem
#SENDERADDR – Set Sender Address
#SENDERNAME – Set Sender Name
#SENDMAILi – Send Mail without Interactive Mode
#SMTPAUTH – Authentication ON or OFF
#SMTPPORT – Set SMTP Server Port
#SMTPPW – Set SMTP Password
#SMTPSERV – Set SMTP Server Address
#SMTPUN – Set SMTP User Name
#SUBJi – Set Email Pre-Defined Subject
#TCPPORT – Set TCP Port for Remote Peer
#TCPSERV – Set Address of Remote TCP Server
#TCPTXDELAY – Time Delay
#TELNET – Start/Stop Telnet Session
#TELNETPASSWORD – Set Telnet Password
#TELNETPORT – Set Telnet Port
#TELNETUSER – Set Telnet User
#UDPPORT – UDP Port Number
#UDPSERV – UDP Server Address
#UDPTXDELAY – Sending UDP Datagram Delay
#VALL – Display All Parameters
#VDNS – Display Configuration of DNS Servers
#VFTP – Display FTP Parameters
#VIP – View Address Settings
#VMAILi – Display Email Parameters for Mail ID
#VPING – Display PING Parameters
#VPOP3 – POP3 Module Parameters
#VSMTP – Display SMTP Parameters
#VSTATE – Display Current Physical Connection
#VTCP – Display TCP Parameters
#VTELNET – View Telnet Settings
#VUDP – Display UDP Module Configuration
#VVERSION – Display Software Version
#WATCHDOG – Enable/Disable Watchdog
#WATCHDOGTIMER – Watchdog Timer
#WEP? – View the Values of WEP Keys
#WEP128KEY – Keys for WEP128 Security Mode
#WEP64KEY – Keys for WEP64 Security Mode
#WEPKEYID – Set Default TX Key Index
#WLANACTIVATE – Move Module out of Power Save
#WLANASSOCINFO – Display Association Information
#WLANCONNECT – Connect with AP
#WLANCOUNTRYCODE – Country Code
#WLANDATARATE – WLAN Transmission Data Rate
#WLANDISCONNECT – Disconnect with AP
#WLANDOZE= – Moves Module into/out of Power Save
#WLANENABLE – Auto Connect Module with AP
#WLANGETRSSI – Received Signal Strength
#WLANIBSSCHANNEL – Channel for Ad-Hoc Mode
#WLANNETWORKMODE – WLAN Network Mode
#WLANPOWERSAVE – Enable Power Save at Boot
#WLANPROFILE – Display the WLAN Profile
#WLANPROFILE – Load the WLAN Profile
#WLANPROFILEn=n – Change the WLAN Profile
#WLANROAM – Enable/Disable Roaming
#WLANSCAN – SCAN Wireless Networks
#WLANSCANMODE – Scanning Mode
#WLANSECURITYMODE – Security of WLAN Module
#WLANSSID – SSID of WLAN
#WLANUSEPROFILE – User Profile
#WPA2PSKKEY – Keys for WPA2 PSK Security Mode
#WPAPSKKEY – Keys for WAP PSK Security Mode
&C – RLSD (DCD) Option
&D – DTR Option
&F – Reset Factory Defaults
&S – DSR On or Off
&W – Store Factory Defaults to NVM
+ICF – DTE-DCE Character Framing
+IFC – Set Flow Control
+IPR – Set Serial Speed
A – Manual Answer of TCP or UDP
A/ – Previous Command
AT – Command Mode
E – Turn Echo ON/OFF
I – Identification
S0= – Automatic Answer
S2 – Escape Sequence
V – Terse or Verbose
Z – Default Configuration

Commands for SocketModem iCell (MTSMC-G2-IP)

#ACCEPT – Answer Incoming Call
#ANSWERMODE – Set Answering Mode
#APNPW – Access Point Name Password
#APNSERV – Access Point Name
#APNUN – Access Point User Name
#ATCMD – Set Default Dial Time AT Commands
#AUTHENT – Authentication Type
#AUTOCONNECT – Automatically Connect the PPP Link
#AUTORESET – Reset Main Processor at a Given Time
#BODYi – Set Pre-Defined Email Combinations
#CALLBACKTIMER – Automatic Call-Back Wait
#CCRECi – Set Additional Recipient CC
#CONNECTIONSTART – Start Communication
#CONNECTIONSTOP – Stop Communication
#DELFLASH – Erase Flash Memory Parameter Values
#DIALN1 – Primary Dial-Up Number
#DIALN2 – Secondary Dial-Up Number
#DIALSELECT – Internet Connection Number
#DISPLAYIP – Display IP Addresses
#DLEMODE – Set DLE Mode
#DOMAIN – Set Domain Name of the Sender
#FTPAPPEND – Append Data to Server
#FTPGET – Download Files from FTP Server
#FTPGETFILENAME – Set FTP Download File Name
#FTPGETPATH – Set Path to Get Files from FTP Server
#FTPMODE – Enter FTP Mode
#FTPPORT – Enter FTP Server Port
#FTPPUT – Upload Files to FTP Server
#FTPPUTFILENAME – Set FTP Upload File Name
#FTPPUTPATH – Set Path to Send Files to the FTP Server
#FTPPW – Set FTP Password
#FTPSERV – Specify FTP Server Address
#FTPTYPE – Specify Data Type
#FTPUN – Set FTP User Name
#GETMAIL – Retrieve Host Mail
#GPRSCID – PDP Context Identifier
#GPRSMODE – Switch Between GSM and GPRS
#ISPPW – ISP Password
#ISPUN – ISP User Name
#KEEPALIVEMODE – Keep-Alive Mode
#KEEPALIVEPORT – Keep-Alive Port Number
#KEEPALIVESERV – Keep-Alive Server Address
#LEGACYMODE – Legacy Mode Enable/Disable
#LTCPSTART – Open Listening Mode
#LTCPSTOP – Close TCP Listening Mode
#LUDPSTART – Initiate the UDP Session in Listen Mode
#LUDPSTOP – Close UDP Listening Mode
#OTCP – Open a TCP Connection
#OUDP – Initiate UDP Session in Active Mode
#OUTPORT – UDP/TCP Local Port Number
#PERSISTENTSOCKET – Persistent Socket
#PHYTIMEOUT – Inactivity Timer
#PING – Start PING Request
#PINGDELAY – PING Delay Time
#PINGNUM – Number of PING Requests
#PINGREMOTE – IP Address of PING Request
#POP3HEADERMODE – POP3 Header
#POP3PW – Set POP3 Password
#POP3SERV – Set POP3 Server Address
#PPPMODE – TCP/IP Behavior
#PPPMYIP – IP Address When Using PPP
#PPPPEERIP – IP Address for Remote PPP
#PPPSERVPW – Remote PPP Client Password
#PPPSERVUN – User Name for Remote PPP Client
#PUTMAIL – Send Mail to Recipient with Interactive Mode
#RECiADD – Set Email Address
#RESET – Reset Main Processor or Internal Modem
#RINGCOUNT – Set Number of Rings
#SENDERADDR – Set Sender Address
#SENDERNAME – Set Sender Name
#SENDMAILi – Send Mail without Interactive Mode
#SMTPAUTH – Authentication ON or OFF
#SMTPPORT – Set SMTP Server Port
#SMTPPW – Set SMTP Password
#SMTPSERV – Set SMTP Server Address
#SMTPUN – Set SMTP User Name
#SUBJi – Set Email Pre-Defined Subject
#TCPPORT – Set TCP Port for Remote Peer
#TCPSERV – Set Address of Remote TCP Server
#TCPTXDELAY – Time Delay
#UDPPORT – UDP Port Number
#UDPSERV – UDP Server Address
#UDPTXDELAY – Delay before Sending UDP Datagram
#VALL – Display All Parameters
#VFTP – Display FTP Parameters
#VMAILi – Display Email Parameters for Mail ID
#VPHY – Display Physical Parameters
#VPING – Display PING Parameters
#VPOP3 – POP3 Module Parameters
#VPPP – Display PPP Parameters
#VSMTP – Display SMTP Parameters
#VSTATE – Display Current State of Physical Connection
#VTCP – Display TCP Parameters
#VUDP – Display UDP Module Configuration
#VVERSION – Display Software Version
+WOPEN – Mode of Operation
&C – RLSD (DCD) Option
&D – DTR Option
&F – Reset Factory Defaults
&S – DSR On or Off
&W – Store Factory Defaults to NVM
+ICF – DTE-DCE Character Framing
+IFC – Set Flow Control
+IPR – Set Serial Speed
AT – Command Mode
E – Turn Echo ON/OFF
I – Identification
V – Terse or Verbose
Z – Default Configuration

Commands for SocketModem iCell (MTSMC-C1-Nx-IP)

#AUTORESET – Reset Main Processor at a Given Time
#BODYi – Set Pre-Defined Email Combinations
#CCRECi – Set Additional Recipient CC
#DELFLASH – Erase Flash Memory Parameter Values
#DLEMODE – Set DLE Mode
#DOMAIN – Set Domain Name of the Sender
#FTPAPPEND – Append Data to Server
#FTPGET – Download Files from FTP Server
#FTPGETFILENAME – Set FTP Download File Name
#FTPGETPATH – Set Path to Get Files from FTP Server
#FTPMODE – Enter FTP Mode
#FTPPORT – Enter FTP Server Port
#FTPPUT – Upload Files to FTP Server
#FTPPUTFILENAME – Set FTP Upload File Name
#FTPPW – Set FTP Password
#FTPSERV – Specify FTP Server Address
#FTPTYPE – Specify Data Type
#FTPUN – Set FTP User Name
#GETMAIL – Retrieve Host Mail
#LEGACYMODE – Legacy Mode Enable/Disable
#LTCPSTART – Open Listening Mode
#LTCPSTOP – Close TCP Listening Mode
#LUDPSTART – Initiate the UDP Session in Listen Mode
#LUDPSTOP – Close UDP Listening Mode
#OTCP – Open a TCP Connection
#OUDP – Initiate UDP Session in Active Mode
#OUTPORT – UDP/TCP Local Port Number
#PERSISTENTSOCKET – Persistent Socket
#PING – Start PING Request
#PINGDELAY – PING Delay Time
#PINGNUM – Number of PING Requests
#PINGREMOTE – IP Address of PING Request
#POP3HEADERMODE – POP3 Header
#POP3PW – Set POP3 Password
#POP3SERV – Set POP3 Server Address
#PUTMAIL – Send Mail to Recipient with Interactive Mode
#RECiADD – Set Email Address
#RESET – Reset Main Processor or Internal Modem
#SENDERADDR – Set Sender Address
#SENDERNAME – Set Sender Name
#SENDMAILi – Send Mail without Interactive Mode
#SMTPAUTH – Authentication ON or OFF
#SMTPPORT – Set SMTP Server Port
#SMTPPW – Set SMTP Password
#SMTPSERV – Set SMTP Server Address
#SMTPUN – Set SMTP User Name
#SUBJi – Set Email Pre-Defined Subject
#TCPPORT – Set TCP Port for Remote Peer
#TCPSERV – Set Address of Remote TCP Server
#TCPTXDELAY – Time Delay
#UDPPORT – UDP Port Number
#UDPSERV – UDP Server Address
#UDPTXDELAY – Delay before Sending UDP Datagram
#VALL – Display All Parameters
#VFTP – Display FTP Parameters
#VMAILi – Display Email Parameters for Mail ID
#VPING – Display PING Parameters
#VPOP3 – POP3 Module Parameters
#VSMTP – Display SMTP Parameters
#VSTATE – Display Current State of Physical Connection
#VTCP – Display TCP Parameters
#VUDP – Display UDP Module Configuration
#VVERSION – Display Software Versio
&C – RLSD (DCD) Option
&D – DTR Option
&F – Reset Factory Defaults
&S – DSR On or Off
&W – Store Factory Defaults to NVM
+ICF – DTE-DCE Character Framing
+IFC – Set Flow Control
+IPR – Set Serial Speed
AT – Command Mode
E – Turn Echo ON/OFF
FTPPUTPATH – Set Path to Send Files to the FTP Server
I – Identification
V – Terse or Verbose
Z – Default Configuration

Commands for SocketModem iCell with GPS
(MTSMC-G2-GP and MTSMC-C1-Nx-GP)

#GPSGETMESSAGE – Get Queued GPS Message
#GPSGPGGA – Enable/Disable GPGGA Message
#GPSGPGLL – Enable/Disable GPGLL Message
#GPSGPGSA – Enable/Disable GPGSA Message
#GPSGPGSV – Enable/Disable GPGSV Message
#GPSGPRMC – Enable/Disable GPRMC Message
#GPSGPVTG – Enable/Disable GPVTG Message
#GPSINTERVAL – GPS Server Transmission Interval
#GPSINTERVALLOC – GPS Local Transmission Interval
#GPSPORT – GPS Host Port
#GPSPREFIX – GPS Message Prefix
#GPSPROTO – GPS Host Protocol
#GPSPW – GPS Host Login Password
#GPSSERV – GPS Host Server Address
#GPSURAIS – GPS Unique Remote Asset Identification String

Commands for SocketModem IP (MT5692SMI-IP)

#ACCEPT – Answer Incoming Call
#ANSWERMODE – Set Answering Mode
#APNPW – Access Point Name Password
#APNSERV – Access Point Name
#APNUN – Access Point User Name
#ATCMD – Set Default Dial Time AT Commands
#AUTHENT – Authentication Type
#AUTOCONNECT – Automatically Connect PPP Link
#AUTORESET – Reset Main Processor at a Given Time
#BODYi – Set Pre-Defined Email Combinations
#CALLBACKTIMER – Automatic Call-Back Wait
#CCRECi – Set Additional Recipient CC
#CONNECTIONSTART – Start Communication
#CONNECTIONSTOP – Stop Communication
#DELFLASH – Erase Flash Memory Parameter Values
#DIALN1 – Primary Dial-Up Number
#DIALN2 – Secondary Dial-Up Number
#DIALSELECT – Internet Connection Number
#DISPLAYIP – Display IP Addresses
#DLEMODE – Set DLE Mode
#DOMAIN – Set Domain Name of the Sender
#FTPAPPEND – Append Data to Server
#FTPGET – Download Files from FTP Server
#FTPGETFILENAME – Set FTP Download File Name
#FTPGETPATH – Path to Get Files from FTP Server
#FTPMODE – Enter FTP Mode
#FTPPORT – Enter FTP Server Port
#FTPPUT – Upload Files to FTP Server
#FTPPUTFILENAME – Set FTP Upload File Name
#FTPPW – Set FTP Password
#FTPSERV – Specify FTP Server Address
#FTPTYPE – Specify Data Type
#FTPUN – Set FTP User Name
#GETMAIL – Retrieve Host Mail
#GPRSCID – PDP Context Identifier
#GPRSMODE – Switch Between GSM and GPRS
#ISPPW – ISP Password
#ISPUN – ISP User Name
#KEEPALIVEMODE – Keep-Alive Mode
#KEEPALIVEPORT – Keep-Alive Port Number
#KEEPALIVESERV – Keep-Alive Server Address
#LEGACYMODE – Legacy Mode Enable/Disable
#LTCPSTART – Open Listening Mode
#LTCPSTOP – Close TCP Listening Mode
#LUDPSTART – Initiate UDP Session in Listen Mode
#LUDPSTOP – Close UDP Listening Mode
#OTCP – Open a TCP Connection
#OUDP – Initiate UDP Session in Active Mode
#OUTPORT – UDP/TCP Local Port Number
#PERSISTENTSOCKET – Persistent Socket
#PHYTIMEOUT – Inactivity Timer
#PING – Start PING Request
#PINGDELAY – PING Delay Time
#PINGNUM – Number of PING Requests
#PINGREMOTE – IP Address of PING Request
#POP3HEADERMODE – POP3 Header
#POP3PW – Set POP3 Password
#POP3SERV – Set POP3 Server Address
#PPPMODE – TCP/IP Behavior
#PPPMYIP – IP Address When Using PPP
#PPPPEERIP – IP Address for Remote PPP
#PPPSERVPW – Remote PPP Client Password
#PPPSERVUN – User Name for Remote PPP Client
#PUTMAIL – Send Mail to Recipient w/Interactive Mode
#RECiADD – Set Email Address
#RESET – Reset Main Processor or Internal Modem
#RINGCOUNT – Set Number of Rings
#SENDERADDR – Set Sender Address
#SENDERNAME – Set Sender Name
#SENDMAILi – Send Mail without Interactive Mode
#SMTPAUTH – Authentication ON or OFF
#SMTPPORT – Set SMTP Server Port
#SMTPPW – Set SMTP Password
#SMTPSERV – Set SMTP Server Address
#SMTPUN – Set SMTP User Name
#SUBJi – Set Email Pre-Defined Subject
#TCPPORT – Set TCP Port for Remote Peer
#TCPSERV – Set Address of Remote TCP Server
#TCPTXDELAY – Time Delay
#UDPPORT – UDP Port Number
#UDPSERV – UDP Server Address
#UDPTXDELAY – Sending UDP Datagram Delay
#VALL – Display All Parameters
#VFTP – Display FTP Parameters
#VMAILi – Display Email Parameters for Mail ID
#VPHY – Display Physical Parameters
#VPING – Display PING Parameters
#VPOP3 – POP3 Module Parameters
#VPPP – Display PPP Parameters
#VSMTP – Display SMTP Parameters
#VSTATE – Display State of Physical Connection
#VTCP – Display TCP Parameters
#VUDP – Display UDP Module Configuration
#VVERSION – Display Software Version
&C – RLSD (DCD) Option
&D – DTR Option
&F – Reset Factory Defaults
&S – DSR On or Off
&W – Store Factory Defaults to NVM
+ICF – DTE-DCE Character Framing
+IFC – Set Flow Control
+IPR – Set Serial Speed
+WOPEN – Mode of Operation
AT – Command Mode
E – Turn Echo ON/OFF
I – Identification
V – Terse or Verbose
Z – Default Configuration

Commands for MultiModem iCell (MTCMR-G/C/H/E)

#ACCEPT – Answer Incoming Call
#ANSWERMODE – Set Answering Mode
#APNPW – Access Point Name Password
#APNSERV – Access Point Name
#APNUN – Access Point User Name
#ATCMD – Set Default Dial Time AT Commands
#AUTHENT – Authentication Type
#AUTOCONNECT – Automatically Connect PPP Link
#AUTORESET – Reset Main Processor at a Given Time
#BODYi – Set Pre-Defined Email Combinations
#CALLBACKTIMER – Automatic Call-Back Wait
#CCRECi – Set Additional Recipient CC
#CONNECTIONSTART – Start Communication
#CONNECTIONSTOP – Stop Communication
#DELFLASH – Erase Flash Memory Parameter Values
#DIALN1 – Primary Dial-Up Number
#DIALN2 – Secondary Dial-Up Number
#DIALSELECT – Internet Connection Number
#DISPLAYIP – Display IP Addresses
#DLEMODE – Set DLE Mode
#DOMAIN – Set Domain Name of the Sender
#FTPAPPEND – Append Data to Server
#FTPGET – Download Files from FTP Server
#FTPGETFILENAME – Set FTP Download File Name
#FTPGETPATH – Path to Get Files from FTP Server
#FTPMODE – Enter FTP Mode
#FTPPORT – Enter FTP Server Port
#FTPPUT – Upload Files to FTP Server
#FTPPUTFILENAME – Set FTP Upload File Name
#FTPPW – Set FTP Password
#FTPSERV – Specify FTP Server Address
#FTPTYPE – Specify Data Type
#FTPUN – Set FTP User Name
#GETMAIL – Retrieve Host Mail
#GPIO – Enable/Disable and Configure External GPIO Driven Events
#GPRSCID – PDP Context Identifier
#GPRSMODE – Switch Between GSM and GPRS
#ISPPW – ISP Password
#ISPUN – ISP User Name
#KEEPALIVEMODE – Keep-Alive Mode
#KEEPALIVEPORT – Keep-Alive Port Number
#KEEPALIVESERV – Keep-Alive Server Address
#LEGACYMODE – Legacy Mode Enable/Disable
#LTCPSTART – Open Listening Mode
#LTCPSTOP – Close TCP Listening Mode
#LUDPSTART – Initiate UDP Session in Listen Mode
#LUDPSTOP – Close UDP Listening Mode
#OTCP – Open a TCP Connection
#OUDP – Initiate UDP Session in Active Mode
#OUTPORT – UDP/TCP Local Port Number
#PERSISTENTSOCKET – Persistent Socket
#PHYTIMEOUT – Inactivity Timer
#PING – Start PING Request
#PINGDELAY – PING Delay Time
#PINGNUM – Number of PING Requests
#PINGREMOTE – IP Address of PING Request
#POP3HEADERMODE – POP3 Header
#POP3PW – Set POP3 Password
#POP3SERV – Set POP3 Server Address
#PPPMODE – TCP/IP Behavior
#PPPMYIP – IP Address When Using PPP
#PPPPEERIP – IP Address for Remote PPP
#PPPSERVPW – Remote PPP Client Password
#PPPSERVUN – User Name for Remote PPP Client
#PUTMAIL – Send Mail to Recipient w/ Interactive Mode
#RECiADD – Set Email Address
#RESET – Reset Main Processor or Internal Modem
#RINGCOUNT – Set Number of Rings
#SENDERADDR – Set Sender Address
#SENDERNAME – Set Sender Name
#SENDMAILi – Send Mail without Interactive Mode
#SMTPAUTH – Authentication ON or OFF
#SMTPPORT – Set SMTP Server Port
#SMTPPW – Set SMTP Password
#SMTPSERV – Set SMTP Server Address
#SMTPUN – Set SMTP User Name
#SUBJi – Set Email Pre-Defined Subject
#TCPPORT – Set TCP Port for Remote Peer
#TCPSERV – Set Address of Remote TCP Server
#TCPTXDELAY – Time Delay
#UDPPORT – UDP Port Number
#UDPSERV – UDP Server Address
#UDPTXDELAY – Sending UDP Datagram Delay
#VALL – Display All Parameters
#VFTP – Display FTP Parameters
#VMAILi – Display Email Parameters for Mail ID
#VPHY – Display Physical Parameters
#VPING – Display PING Parameters
#VPOP3 – POP3 Module Parameters
#VPPP – Display PPP Parameters
#VSMTP – Display SMTP Parameters
#VSTATE – Display State of Physical Connection
#VTCP – Display TCP Parameters
#VUDP – Display UDP Module Configuration
#VVERSION – Display Software Version
&C – RLSD (DCD) Option
&D – DTR Option
&F – Reset Factory Defaults
&S – DSR On or Off
&W – Store Factory Defaults to NVM
+ICF – DTE-DCE Character Framing
+IFC – Set Flow Control
+IPR – Set Serial Speed
+WOPEN – Mode of Operation
AT – Command Mode
E – Turn Echo ON/OFF
I – Identification
V – Terse or Verbose
Z – Default Configuration

Chapter 1 – General AT Commands for All Universal IP Devices

Set Commands

AT – Command Mode

Description: If the modem responds OK to the command **AT**, the modem is in command mode.

E – Turn Echo ON/OFF

Description: Use this command to turn ON/OFF echoing command at the serial terminal.

Syntax: **ATE**

Values: ATE0 & ATE turn echo off.

ATE1 turns echo on.

I – Identification

Description: Displays identification parameters.

Syntax: **ATI<value>**

Responses: For MT100SEM: "1.00 to 1.00g"
For MT810SWM-IP: "1.xx" (Note: "xx" is the number.)
OK

Values: ATI**3** – Identifies the firmware version.
Example: Version:MT810swm Release V1.0 (12-August-09)
OK
ATI**5** – Identifies the country.
Example: "B5" (MT100SEM example)

V – Terse or Verbose

Description: Sets terse or verbose responses.

Syntax: **ATVx** where x=0,1

Values: ATV0 Sets terse
ATV1 Sets verbose

Display: ATV? Displays the current **V** setting or use AT#VALL to view all settings.

Default: **ATV1**

Z – Default Configuration

Description: This command restores the configuration profile from NVM. Settings are recalled on power up.
Syntax: **ATZ**
Response: OK (Command valid)

&C – RLSD (DCD) Option Turn On or Off

Description: The modem controls the RLSD output in accordance with the parameter supplied. This command sets the DCD On or Off.
Syntax: **AT&C<value>**
Values: **0** – Sets DCD to remain On at all times.
1 – Sets DCD to follow the physical connection.
2 – DCD follows the state of the TCP/UDP connection.
Default: **1**
Response: OK
Otherwise ERROR

&D – DTR Option

Description: The modem reads the DTR to determine if the Data Terminal is Ready. This command allows the modem to act on the DTR.
Syntax: **AT&D<value>**
Values: **0** – DTR is ignored.
1 – An Active to Inactive transition disconnects an active TCP/UDP connection
2 – (For Non-MT100SEM) An active to inactive transition disconnects the physical connection
Default: **0**
Response: OK
Otherwise ERROR

&F – Reset Factory Defaults

Description: **For MT100SEM:** This command replaces all settings with the factory defaults but does not store them to memory. Use &W to store them to the memory.
For NON-MT100SEM: This command replaces the factory defaults of &D, &S, &C, E, and V only.
Note: The module must be RESET to put this command into effect.
Syntax: **AT&F**
Values: None

&S – DSR ON or OFF

Description: This command sets the DSR to ON of OFF.
Syntax: **AT&Sx** where x=0,1,2,?
Values: AT&S0 Sets DSR to remain ON at all times
AT&S1 Sets DSR to follow DCD
AT&S2 DSR follows the state of the TCP/UDP connection
Display: AT&S? Displays the current setting or use AT#VALL to view all settings.
Default: **1**
Response: OK
Otherwise ERROR

&W – Store Factory Defaults to NVM

Description: **For MT100SEM:** Stores factory defaults to the NVM.
For NON-MT100SEM: Stores the current settings of &D, &S, &C, E, and V only.

Syntax: **AT&W**

Values: None

+ICF – DTE-DCE Character Framing

Description: This command determines the local serial port start-stop (asynchronous) character framing that the DCE uses.

Syntax: **AT+ICF= <format value>[, <parity value>]**

Values: **<format>**

- **0** Autodetect (not supported)
- **1** 8 Data 2 Stop (supported)
  <parity> parameter is ignored
- **2** 8 Data 1 Parity 1 Stop (supported)
  If no <parity> provided, 3 is used by default as <parity> value
- **3** 8 Data 1 Stop (supported)
  <parity> parameter is ignored
- **4** 7 Data 2 Stop (supported)
  <parity> parameter is ignored
- **5** 7 Data 1 Parity 1 Stop (supported)
  If no <parity> provided, 3 is used by default as <parity> value
- **6** 7 Data 1 Stop (supported)
  <parity> parameter is ignored

<parity>

- **0** Odd (supported)
- **1** Even (supported)
- **2** Mark (supported)
- **3** Space (supported)
- **4** None (supported)

Default: Format: **2**
Parity: **4**
Default Example: AT+ICF= 2,4

Examples:

+ICF input values		Resulting affect		
Format	Parity	Data bits	Stop bits	Parity
1	0-4, blank (ignored)	8	2	None
2	0-4, blank	8	1	0-4; 3 if the input is left blank
3	0-4, blank (ignored)	8	1	None
4	0-4, blank (ignored)	7	2	None
5	0-4, blank	7	1	0-4; 3 if the input is left blank
6	0-4, blank (ignored)	7	1	None

Note: The input for the command always requires the format value. However, the parity value is optional and will be set as defined in the table.

+IFC – Set Flow Control

Description: Turns flow control on and off.
Syntax: **AT+IFC=<flow control value>**
Values: **0,0** Flow Control Off
2,2 Hardware Flow Control On
Default: **2,2** Hardware Flow Control On

+IPR – Set Serial Speed

Description: Sets the serial speed.
Syntax: **AT+IPR=<serial speed value>**
Values: **300** to **921600**
Display: AT+IPR? Displays the current serial speed.
AT+IPR=? Displays a list of all possible values (serial speeds).
Default: For All Products: **115200**

#AUTORESET - Reset the Processor at a Given Time

Definition: Set an amount of time when the modem will reset after no input has been detected on the serial port. **Note: This command is not supported on the MT100SEM**.
Syntax: **Set Value: AT#AUTORESET=<time in minutes>**
View Values: AT#AUTORESET? or **AT#VALL**
Values: 0-65535 the time in minutes
From 1 to 5 numeric digits (0 to 9).
Default: **0**

#DELFLASH – Erase Flash Memory Parameter Values

Definition: This command erases the contents of the flash memory and loads with defaults values.
Syntax: **AT#DELFLASH**
Values: No parameter values.

#LEGACYMODE – Legacy Mode Enable/Disable

About Legacy Mode:

Note: This command is for all devices except the SocketEthernet IP (MT100SEM-IP)

Legacy mode allows for smoother transition to TCP/IP based connectivity from standard analog interface connections.

When #LEGACYMODE=1, the stack will be in pseudo legacy mode where the commands &S, &D, &C, A, D, S0, E, V operate independently of the stack. The commands will be saved to a different NVRAM location and will not affect the IP stack once legacy mode has been exited.

Once in legacy mode, the user can configure the #TCP values and issue an ATD command to make a connection to the remote host. If necessary, the user can also issue ATDxxxxxxxxxxxxppppp where x is the decimal address and ppppp is the remote port. The stack will perform the physical connection and present the user with the proper messages:

NO CARRIER

NO ANSWER
CONNECT
OK
ERROR

Description: If legacy mode is enabled, the AT interface tries to behave like a legacy analog modem. ATD and ATA will function on the TCP stack instead of the physical connection. Responses will behave like that of an analog modem.

Syntax: **Set Value: AT#LEGACYMODE=1**
View Values: AT#LEGACYMODE?

Values: **0** Disable legacy mode
1 Enable legacy mode

Default: **0**

#PERSISTENTSOCKET - Persistent Socket

Definition: If enabled and the physical connection is present, a socket will be created automatically.
Note: This command is for all devices except the SocketEthernet IP (MT100SEM-IP).

Syntax: **Set Value: AT#PERSISTENTSOCKET=<Persistentsocket value>,<Result Codes>**
View Values: **AT#PERSISTENTSOCKET?** or **AT#VALL**

Values: **0** Persistent socket is disabled
1 The TCP originate is started (#OTCP=1)
2 The TCP listener is started (#LTCPSTART=1)
3 The UDP originate is started (#OUDP=1)
4 The UDP listener is started (#LUDPSTART=1)

Result Codes: **0** All result codes will be suppressed during socket connection/disconnection
1 All result codes will be displayed during socket connection/disconnection

Defaults: **0,1**

Example: AT#PERSISTENTSOCKET=1,0

#RESET – Reset Main Processor or Internal Modem

Definition: This command will force a reset on the Stack and internal radio or just the internal radio.

Syntax: **AT#RESET =<value>**

Values: **0** Reset the Stack and internal modem
1 Reset the internal modem only. **Note:** This value is not valid for the SocketEthernet IP (MT100SEM-IP) and the SocketWireless Wi-Fi (MT810SWM-IP)

Example: AT#RESET=0

Note: After issuing AT#RESET, it can take up to 45 seconds before the MT810SWM-IP is ready to accept AT Commands. When configuring the MT810SWM-IP using security mode WPA or WPA2, the bootup time will take longer.

Display Commands

#VVERSION – Display Software Version

Definition: This command directs the TCP/IP stack to display the software version.
Syntax: **AT#VVERSION**
Values: No TCP/IP parameters.

#VSTATE – Display Current State of Physical Connection

Definition: This command displays the status of the physical network connection.
Note: **This command is not supported on the MT100SEM**.

Syntax: **AT#VSTATE**
Possible Responses:

#STATE: "IDLE"	Physical connection is idle and ready to connect
#STATE: "DIALING"	Physical connection is attempting to contact the network
#STATE: "AUTHENTICATING"	Physical connection is complete; PPP authentication is being performed
#STATE: "CONNECTED"	Physical connection is complete and PPP negotiation is complete; stack is ready for client commands
#STATE: "DISCONNECTING"	Physical connection is in the process of disconnecting from the network
#STATE: "DISCONNECTED"	Physical connection is disconnected from the network (Only used on the MT100SEM-IP)
#STATE: "CHECKING"	Checking current status; try again

#VALL – Display All Parameters

Note: The MT100SEM display of Possible Responses differs slightly from the MT5692SMI-IP display. An example of the **MT100SEM Possible Responses** screen is included on this page. See the next page for an example of the other **Possible Responses** screen.

Definition: This command directs the TCP/IP stack to display all AT# parameters. The parameters are displayed by blocks of categories separated by a <CR><LF> sequence, all at the same time.

Syntax: **AT#VALL**

Possible Responses – *MT100SEM-IP*	
#FTPGETFILENAME: " " #FTPGETPATH: " " #FTPMODE: 0 #FTPPORT: 21 #FTPPUTFILENAME: " " #FTPPUTPATH: " " #FTPPW: "ftppassword" #FTPSERV: " " #FTPTYPE: 1 #FTPUN: “ftplogin” #POP3HEADERMODE: 1 #POP3PORT: 110 #POP3PW: "password" #POP3SERV: "pop3.domain.com" #POP3UN: "module@domain.com"	#PINGDELAY: 1 #PINGNUM: 4 #PINGREMOTE: " " #DHCP: 0 #IPADDR: "192.168.2.3" #IPGATEWAY: "192.168.2.1" #IPNETMASK: "255.255.255.0" #EMACSPD: 0 #DNSSERV1: "0.0.0.0" #DNSSERV2: "0.0.0.0" #TELNET: 0 #TELNETPORT: 23 #TELNETUSER: "admin" #TELNETPASSWORD: " " +IPR: 115200

#DOMAIN: "domain.com" #SENDERADDR: "module@domain.com" #SENDERNAME: "Test module" #SMTPPORT: 25 #SMTPPW: " " #SMTPSERV: "smtp.domain.com" #SMTPUN: " " #SMTPAUTH: 1 #BODY1: " " #CCREC1: " " #REC1: " " #SUBJ1: "Email Subject" #BODY2: " " #CCREC2: " " #REC2: " " #SUBJ2: " " #BODY3: " " #CCREC3: " " #REC3: " " #SUBJ3: " " #DLEMODE: 1 , 1 #TCPSERV: 1 , " " #TCPPORT: 1 , 0 #TCPTXDELAY: 1 , 100 #DLEMODE: 2 , 1 #TCPSERV: 2 , " " #TCPPORT: 2 , 0 #TCPTXDELAY: 2 , 100 #UDPSERV: 1 , " " #UDPPORT: 1 , 0 #UDPTXDELAY: 1 , 100 #UDPSERV: 2 , " " #UDPPORT: 2 , 0 #UDPTXDELAY: 2 , 100	+ICF: 2,4 +IFC: 2,2 #AUTODISC: 1 #AUTODISCPORT:1020 #AUTODISCTIMER: 10 #AUTODISCHOST: "MT100SEM" #AUTODISCUSER: "admin" #AUTODISCPASSWORD: " " V: 1 &S: 0 &C: 0 OK

Syntax: **AT#VALL**

Possible Responses – Applies to All Except MT100SEM-IP	
#ANSWERMODE: 0 #CALLBACKTIMER: 2 #CALLSCREENNUM: "0" #DIALN1: "" #DIALN2: "" #DIALSELECT: 1 #GPRSMODE: 1 #PHYTIMEOUT: 15 #REDIALCOUNT: 0 #REDIALDELAY: 5 #RINGCOUNT: 0 #AUTOCONNECT: 0 #ISPUN: "" #ISPPW: "" #PPPMODE: 3 #PPPMYIP: 0.0.0.0 #PPPPEERIP: 0.0.0.0 #PPPSERVPW: ""	#TCPTXDELAY: 1,100 #UDPPORT: 0 #UDPSERV: "" #UDPTXDELAY: 100 #PINGDELAY: 1 #PINGNUM: 4 #PINGREMOTE: "" #AUTHENT: NONE +IPR: 115200 +ICF: 2,4 +IFC: 2,2 V: 1 E: 1 &S: 1 &C: 1 &D: 0 #KEEPALIVEMODE: 0 #KEEPALIVEPORT: 0

```
#PPPSERVUN: ""
#APNPW: ""
#APNSERV: ""
#APNUN: ""
#GPRSCID: 1
#DNSSERV1: "0.0.0.0"
#DNSSERV2: "0.0.0.0"
#FTPGETFILENAME: ""
#FTPGETPATH: ""
#FTPPORT: 21
#FTPPUTFILENAME: ""
#FTPPUTPATH: ""
#FTPPW: ""
#FTPSERV: ""
#FTPTYPE: I
#FTPUN: ""
#FTPMODE: 0
#POP3HEADERMODE: 1
#POP3PORT: 110
#POP3PW: ""
#POP3SERV: ""
#POP3UN: ""
#DOMAIN: ""
#SENDERADDR: ""
#SENDERNAME: ""
#SMTPPORT: 25
#SMTPPW: ""
#SMTPSERV: ""
#SMTPUN: ""
#BODY1: ""
#CCREC1: ""
#REC1: ""
#SUBJ1: ""
#BODY2: ""
#CCREC2: ""
#REC2: ""
#SUBJ2: ""
#BODY3: ""
#CCREC3: ""
#REC3: ""
#SUBJ3: ""
#DLEMODE: 1,1
#TCPPORT: 1,0
#TCPSERV: 1,""
#KEEPALIVEDELAY: 100
#KEEPALIVESERV: ""
#LEGACYMODE: 0
#AUTORESET: 0
#ATCMD: 1,""
#ATCMD: 2,""
#ATCMD: 3,""
#ATCMD: 4,""
#PERSISTENTSOCKET: 0
#OUTPORT: 37500
#GPIO: 1,1,0,0,0,0
#GPIO: 2,1,0,0,0,0
#GPIO: 3,0,0,0,0,0
#GPIO: 4,0,0,0,0,0
#GPIO: 5,3,0,0,0,0
OK
```

Chapter 2 – SMTP Commands for All Universal IP Devices

Set Commands

#SENDERNAME – Set Sender Name

Definition: The sender's literal name (different from the SENDERADDR parameter, which is the sender's email address). This parameter will appear in the header of the email sent by the TCP/IP stack software, in the field: "From:"

Syntax: **Set Value: AT#SENDERNAME="<value>"**
View Value: AT#SENDERNAME? or AT#VSMTP, AT#VALL

Values: Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance, "machine 245"). No default.

#SENDERADDR – Set Sender Address

Definition: To send emails, the TCP/IP stack software must know the email address of the sender. The "sender" is the email identification of the hardware platform itself or the optional attached equipment. This email address will appear in the header of the email sent by the TCP/IP stack software, in the field "From:"

Syntax: **Set Value: AT#SENDERADDR="<value>"**
View Value: AT#SENDERADDR? or **AT#VSMTP, AT#VALL**

Values: Alphanumeric ASCII text string up to 60 characters. The address must be provided in literal format (for instance xxxxxxx@web.zyx). No default.

#CCRECi – Set Additional Recipient CC

Definition: The software can send email messages to an additional recipient as a "carbon copy". This parameter contains the email address of the additional recipient. This email address will appear in the header of the email sent by the TCP/IP stack software in the field "Cc:"

For a given value n, the CCRECn parameter is directly associated with the RECn parameter.

Syntax: **Set Value: AT#CCRECi="<value>"**

View Values: **AT#CCRECi?** (replace i with 1, 2, or 3) or **AT#VMAILi, AT#VALL**

Values: CCRECi (i = 1, 2, or 3)

Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance xxxxx@web.com). No default.

#DOMAIN – Set Domain Name of the Sender

Definition: When sending an email message, the TCP/IP stack software must provide the SMTP server with the domain name of the sender. In some cases, this domain name may be different from the domain name included in the sender's email address.

Syntax: **Set Value: AT#DOMAIN="<value>"**
View Value: AT#DOMAIN? or AT#VSMTP, AT#VALL

Values: Alphanumeric ASCII text string up to 120 characters. No default.

#RECiADD – Set Email Address

Definition: To send email messages, the TCP/IP stack software must know the e-mail address of the recipient. This email address will appear in the email header sent by the TCP/IP stack software, in the field 'To:'
The RECi parameter can hold a maximum of 10 email addresses, each email address being at the most 120 characters long.

Syntax: **Set Value: AT#RECi="<Value>"**
View Value: AT#RECi? (replace i with 1, 2, or 3) or **AT#VMAILi, AT#VALL**

Values: RECi (i = 1, 2, or 3)
Alphanumeric ASCII text string up to 120 characters. The address must be provided in literal format (for instance xxxxx@company.com). No default.

Setting One Email Address / Resetting the Parameter / Getting:
Set value / reset the parameter: AT#RECi="<Value>" (replace i with 1, 2, or 3)
View value: AT#REC? (replace i with 1, 2, or 3) or AT#VMAILi, AT#VALL

Setting One to Ten Email Address to the RECi Parameter / Resetting the Parameter:
To set 1 to 10 email addresses to the RECi parameter, enter the AT#RECiADD<CR> overwriting command.
Each email address has to be an alphanumeric ASCII text string, in literal format (for instance, dev12345678@web.xyz). To add another email address, enter the <CR><LF> pair. To end the setting, enter the following character: 1A (in ASCII code), generated in a keyboard by CTRL+Z escape sequence.

Note 1: This command overwrites all previously set email addresses of the RECi parameter.

Note 2: If more than ten addresses are entered, the 11th and subsequent addresses until the end character will be ignored.

Example: AT#REC1ADD<CR>
Email1@domain.fr<CR><LF>
Email2@domain.com<CR><LF>
<CTRL+Z>

#SUBJi – Set Email Pre-Defined Subject Text

Definition: These parameters contain the pre-defined subject text that will be used by the TCP/IP stack to compose the email header.

Syntax: **Set Value: AT#SUBJi="<value>"** (replace i with 1, 2, or 3)
View Value: AT#SUBJi? (replace i with 1, 2, or 3) or **AT#VMAILi, AT#VALL**

Values: Alphanumeric ASCII text string up to 120 characters. No default.

#BODYi – Set Pre-Defined Email Combinations

Definition: These parameters store pre-defined message bodies. They allow the host application to send pre-defined email combinations.

Syntax: **Set Value: AT#BODYi="<value>"** (replace i with 1, 2, or 3)
View Value: AT#BODYi? (replace i with 1, 2, or 3) or **AT#VMAILi, AT#VALL**

Values: The body content has to be entered after the AT#BODY1<CR> command. It has to be an alphanumeric ASCII text string up to 120 characters followed this character: 1A (in ASCII code) and generated on a keyboard by CTRL+Z. No default.

Example: AT#BODY1<CR>
Text string
<CTRL+Z>

#SMTPPORT – Set SMTP Server Port

Definition: To reach the SMTP server, the TCP/IP stack software must know the port of the SMTP server used for sending email.
Note: This parameter should be changed only by your network administrator since it depends on network infrastructure configuration including firewalls, proxy or specific TCP port translation settings.

Syntax: **Set Value: AT#SMTPPORT=<value>**
View Value: AT#SMTPPORT? or **AT#VSMTP, AT#VALL**

Values: From 1 to 5 digits (each digit between 0 and 9 inclusive). Note that numbers above 65,535 are illegal as the port identification fields are 16 bits long in the TCP header.

Default: **25**

#SMTPPW – Set SMTP Password

Definition: To send email messages, some SMTP servers are using an authentication process. In these cases, the TCP/IP stack software will provide the SMTP password (associated to the SMTP user name) for the email sending process.
If this parameter is an empty string, the authentication mode is inactive.
If both this parameter and the SMTPUN parameter are not empty, the authentication mode is active.

Syntax: **Set Value: AT#SMTPPW="<value>"**
View Value: AT#SMTPPW? or **AT#VSMTP, AT#VALL**

Values: Alphanumeric ASCII text string up to 64 characters. No default.

#SMTPSERV – Set SMTP Server Address

Definition: To send email messages the TCP/IP stack software must know the address of the SMTP server that is to be used. In most cases, the local ISP maintains the SMTP server.

Syntax: **Set Value: AT#SMTPSERV="<value>"**
View Value: AT#SMTPSERV? or **AT#VSMTP, AT#VALL**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is available. No default.

#SMTPUN – Set SMTP User Name

Definition: To send email messages, some SMTP servers use an authentication process. In these cases, the TCP/IP stack software will provide the SMTP user name (associated with a SMTP password) for the email sending process.

If this parameter is an empty string, the authentication mode is inactive. If both this parameter and the SMTPPW parameter are not empty, the authentication mode is active.

Syntax: **Set Value: AT#SMTPUN="<value>"**
View Value: AT#SMTPUN? or **AT#VSMTP, AT#VALL**

Values: Alphanumeric ASCII text string up to 64 characters. No default.

#SENDMAILi – Send Mail without Interactive Mode

Important Note: MT5692SMI-IP supports only SENDMAIL1 options.

Definition: This command sends one of the 3 pre-defined email combinations. Once an IP link is established, the attached host can direct the TCP/IP stack to send an email message at any time (except when the TCP/IP stack software is already in a process using TCP resources).

The header of this email is built using the REC1/2/3, CCREC1/2/3 and SUBJ1/2/3 parameters while the body is filled in the BODY1/2/3 parameter.

This command is similar to a “send email” operation issued by a standard messaging client on a PC.

Syntax: **AT#SENDMAILi**

Example: **Note:** In #SENDMAILi, the *i* is to be replaced with #SENDMAIL1, #SENDMAIL2, or #SENDMAIL3.

Command	Possible Responses
AT#SENDMAIL1 Note: Send predefined mail #1	**OK** Note: Mail 1 has been successfully sent
AT#SENDMAIL2 Note: Send predefined mail #2	**OK** Note: Mail 2 has been successfully sent
AT#SENDMAIL3 Note: Send predefined mail #3	**OK** Note: Mail 3 has been successfully sent
AT#SENDMAIL2	**#CME ERROR: 38027** Notes: The address of the SMTP server has not been resolved by the secondary DNS server. TCP/IP stack is not able to reach the primary or secondary DNS servers or a wrong SMTP server address has been entered.
AT#SENDMAIL1	**#CME ERROR: <value>** Notes: An error has occurred during the communication with the remote SMTP server. It may also happen during the data transfer (after the OK message). This error can be due to one of the following reasons: - The DNS servers are not able to resolve the SMTP server address - The SMTP server is temporarily out of service - The authentication (SMTPUN, SMTPPW) is not valid - Email address specified in REC1 or CCREC1 is not valid See section ‘Response messages and error codes’.

To view parameters, use #VMAIL and #VSMTP. They are also listed in #VMAILi (where i = 1, 2, or 3)

#PUTMAIL – Send Mail to Recipient with Interactive Mode

Definition: This command allows the attached host to send an email message containing body text passed to the TCP/IP stack over the serial port. Once an IP link is established, the attached host can send an email message at any time (except when the TCP/IP stack software is already in a process using TCP resources).

The header of this email is built using the REC1, CCREC1 and SUBJ1 parameters.

This command is similar to a "send email" operation issued by a standard messaging client on a PC.

Syntax: **AT#PUTMAIL**

IMPORTANT NOTE:

You must issue the <CR><LF> bytes (binary value: 0D 0A) as the first data bytes if a header is NOT being constructed in order to finish the internal headers correctly. This mechanism is in place to allow for the addition of custom headers such as MIME data.

Command	Possible Responses
AT#PUTMAIL Note: You have to configure only receiver address1, copy address1, and subject1 before or during the session, but content (body) of the email is typed when the TCP/IP session is established. Content is not echoed.	Ok_Info_WaitingForData Notes: An SMTP session has been successfully opened with the remote SMTP server. Once the TCP/IP stack has displayed this message, all the data received on the serial port is sent within the email body. The (CR)(LF)(.)(CR)(LF) sequence sent by the attached host indicates the TCP/IP stack the end of the email body.
<CR><LF> **Note:** See **Important Note** above.	
<content> Note: Content is not written when typing	
<CR><LF> . <CR><LF> Note: Termination sequence <CR> = <Enter>, <LF> = <Ctrl Enter>	OK Note: The mail has been successfully sent.
AT#PUTMAIL	#CME ERROR: 38027 Notes: The address of the SMTP server has not been resolved by the secondary DNS server. TCP/IP stack is not able to reach the primary or secondary DNS servers or a wrong SMTP server address has been entered.
AT#PUTMAIL	#CME ERROR: <value> Notes: An error has occurred during the communication with the remote SMTP server. It may also happen during the data transfer (after the OK message). This error can be due to one of the following reasons: - DNS servers are not able to resolve the SMTP server address. - SMTP server is temporarily out of service. - Authentication (SMTPUN, SMTPPW) is not valid. - An email address specified in REC1 or CCREC1 is not valid. - *n* = inactivity period of 50 seconds on the serial port. See section 'Response messages and error codes'

To view parameters, use #VMAIL and #VSMTP. They are also listed in #VMAILi (where i = 1, 2, or 3)

#SMTPAUTH – Authentication ON or OFF

Definition: Turns authentication ON or OFF.

Syntax: **Set Value: AT#SMTPAUTH=<value>**
View Value: AT#SMTPAUTH? or **AT#VSMTP, AT#VALL**

Values: 0 OFF
1 ON

Default: **0**

Display Commands

#VSMTP – Display SMTP Parameters

Definition: Directs the TCP/IP stack to display all the AT# parameters related to the email sender configuration.

Syntax: **AT#VSMTP**

Example:

Command	Possible Responses
AT#VSMTP Note: View SMTP parameters	#DOMAIN: “a2myoper.com” #SENDERADDR: “toto@myoper.com” #SENDERNAME: “toto” #SMTPPORT: 25 #SMTPPW: “mysmtppw” #SMTPSERV: “smtp.a2myoper.com” #SMTPUN: “mysmtpun” #SMTPAUTH: 1 OK

#VMAILi – Display Email Parameters for Respective Mail ID

Definition: This command directs the TCP/IP stack to display all the AT# parameters related to the email combinations configuration.

Syntax: **AT#VMAILi** (replace **i** with **1**, **2**, or **3**)

Command	Possible Responses
AT#VMAIL1 Note: View predefined (nb 1) mail header elements	#Body 1= #REC1= #CCREC1= #SUBJ1= OK

Chapter 3 – POP3 Commands for All Universal IP Devices

Set Commands

#POP3HEADERMODE – POP3 Header

Definition: When receiving an email message, the TCP/IP stack can be configured to send or not to send the POP3 header over the serial port. The POP3 header contains the From, Cc and Subject fields.

Syntax: **Set Value: AT#POP3HEADERMODE=<value>**
View Value: AT#POP3HEADERMODE? or **AT#VPOP3, AT#VALL**

Values: **0** The email header will not be sent over the serial port while retrieving.
1 The email header will be sent over the serial port while retrieving.

Default: **1**

#POP3PORT – Set POP3 Server Port

Definition: To reach the POP3 server, the TCP/IP stack software must know the port of the POP3 server used for retrieving email.
Note: This parameter should be changed only by your network administrator since it depends on network infrastructure configuration including firewalls, proxy or specific TCP port translation settings.

Syntax: **Set Value: AT#POP3PORT=<value>**
View Value: AT#POP3PPORT? or **AT#VPOP3, AT#VALL**

Values: 5 digits (each digit between 0 and 9 inclusive). Note that numbers above 65,535 are illegal as the port identification fields are 16 bits long in the TCP header.

Default: **110**

#POP3PW – Set POP3 Password

Definition: Password for POP3 account. To retrieve email messages sent to a specified email address, the TCP/IP stack software must know the POP3 password that has been set for that email account.

Syntax: **Set Value: AT#POP3PW="<value>"**
View Value: AT#POP3PW? or AT#VPOP3, AT#VALL

Values: Alphanumeric ASCII text string up to 64 characters. No default.

#POP3SERV – Set POP3 Server Address

Definition: To retrieve email messages, the TCP/IP stack software must know the address of the POP3 server that is to be used. The POP3 server must be the one where the specified email account is hosted (which is not necessarily maintained by the local ISP).

Syntax: **Set Value: AT#POP3SERV="<value>"**
View Value: AT#POP3SERV? or **AT#VPOP3, AT#VALL**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is available. No default.

#POP3UN – Set POP3 User Name

Definition: User name for POP3 account. To retrieve email messages sent to a specified email address, the TCP/IP stack software must know the POP3 user name that has been set for that email account.

Syntax: **Set Value: AT#POP3UN="<value>"**
View Value: AT#POP3UN? or **AT#VPOP3, AT#VALL**

Values: Alphanumeric ASCII text string up to 64 characters. No default.

#GETMAIL – Retrieve Host Mail

Definition: This command allows the attached host to direct the TCP/IP stack to retrieve the first mail present in the POP3 server list. Once an IP link is established, the attached host can retrieve an email message at any time (except when the TCP/IP stack software is already in a process using TCP resources). This command is similar to a “check email box” feature issued by a standard messaging client on a PC.

Syntax: **AT#GETMAIL**

Command	Possible Responses
AT#GETMAIL Note: Retrieve mail	Ok_Info_Mail <mail content> **Notes:** This message is issued when one email message is located in the specified POP3 mailbox. Depending on the #POP3HEADERMODE parameter, the TCP/IP stack sends the email header over the serial port to the attached host. The (CR)(LF)(.)(CR)(LF) sequence indicates the end of the email body.
AT#GETMAIL	Ok_Info_NoMail **Note:** There is no email to retrieve in the POP3 mailbox.
AT#GETMAIL	#CME ERROR: 38027 **Notes:** The address of the POP3 server has not been resolved by the secondary DNS server. TCP/IP stack is not able to reach the primary and secondary DNS servers or a wrong POP3 server address has been entered.
AT#GETMAIL	#CME ERROR: <value> **Notes:** An error has occurred during the communication with the remote POP3 server. It may also happen during the data transfer after the MAIL message. In this case, it is preceded by a (CR)(LF)(.)(CR)(LF) sequence. This error can be due to one of the following reasons: - The DNS servers are not able to resolve the POP3 server address - The POP3 server is temporarily out of service - The authentication (POP3UN, POP3PW) is not valid See section ‘Response messages and error codes’.

To view parameters, use #VPOP3

Display Commands

#VPOP3 – POP3 Module Parameters

Description: Directs the TCP/IP stack to display all the AT# parameters related to the email retriever configuration.

Syntax: View Values: **AT#POP3?**

Values: POP3HEADERMODE
POP3PORT
POP3PW
POP3SERV
POP3UN
POP3VERBOSE (for MT810SWM-IP only).
No default

Chapter 4 – FTP Commands for All Universal IP Devices

Set Commands

#FTPPORT – Enter FTP Server Port

Definition: To reach the FTP server, the TCP/IP stack software must know the control port of the FTP server used for file transfer.

Note: This parameter should be changed only upon request of your network administrator since it applies to network infrastructure including firewalls, proxy or specific TCP port translation.

Syntax: **Set Value: AT#FTPPORT=<value>**

View Value: AT#FTPPORT? or **AT#VFTP, AT#VALL**

Values: From 1 to 5 digits (each digit between 0 and 9 inclusive).
Numbers above 65,535 are illegal as port identification fields are 16 bits long in the TCP header.

Default: **21**

#FTPMODE – Enter FTP Mode

Definition: Define the FTP behavior for file transfer.

Syntax: **Set Value: AT#FTPMODE=<value>**
View Value: AT#FTPMODE? or **AT#VFTP, AT#VALL**

Values: **0** FTP Active Mode
1 FTP Passive Mode

Default: **0**

#FTPTYPE – Specify Data Type

Definition: Before transferring files from a specified FTP server, the TCP/IP stack software must specify the type of data to be transferred within the FTP session.

Syntax: **Set Value: AT#FTPTYPE="<value>"**
View Value: **AT#FTPTYPE?** or **AT#VFTP, AT#VALL**

Values: **A** FTP ASCII sessions (Not all products support this option)
I FTP Binary sessions.

Note: When this value is set to A, all the data sent by the TCP/IP stack to the FTP server is made of 7 bits characters (NVT-ASCII: the MSB is set to 0). As a consequence binary data containing 8 bits characters will be corrupted during the transfer if the FTPTYPE is set to A.

Default: **I**

#FTPSERV – Specify FTP Server Address

Definition: FTP server address. To connect to an FTP server to download files, the TCP/IP stack software must know the address of the FTP server that is to be used.

Syntax: **Set Value: AT#FTPSERV="<value>"**
View Value: AT#FTPSERV? or **AT#VFTP, AT#VALL**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is available. No default.

#FTPUN – Set FTP User Name

Definition: Before transferring files from a specified FTP server, the TCP/IP stack software must open an FTP session using a valid FTP user name.

Syntax: **Set Value: AT#FTPUN="<value>"**
View Value: **AT#FTPUN?** or **AT#VFTP, AT#VALL**

Values: Alphanumeric ASCII text string up to 64 characters. No default.

#FTPPW – Set FTP Password

Definition: Before transferring files from a specified FTP server, the TCP/IP stack software must open an FTP session using a valid FTP password.

Syntax: **Set Value: AT#FTPPW="<value>"**
View Value: AT#FTPPW? or **AT#VFTP, AT#VALL**

Values: Alphanumeric ASCII text string up to 64 characters. No default.

#FTPGETFILENAME – Set FTP Download File Name

Definition: In order to download a file from the FTP server, the TCP/IP stack software must know the name of the relevant file.

Syntax: **Set Value: AT#FTPGETFILENAME="<value>"**
View Value: AT#FTPGETFILENAME? or **AT#VFTP, AT#VALL**

Values: Alphanumeric ASCII text string up to 120 characters. No default.

#FTPPUTFILENAME – Set FTP Upload File Name

Definition: In order for the TCP/IP stack software to upload a file to the FTP server, the TCP/IP stack software must know the name of the relevant file.

Syntax: **Set Value: AT#FTPPUTFILENAME="<value>"**
View Value: AT#FTPPUTFILENAME? or **AT#VFTP, AT#VALL**

Values: Alpha-numeric ASCII text string up to 120 characters. No default.

#FTPGET – Download Files from FTP Server

Definition: This command, sent by the attached host, directs the TCP/IP stack to connect to the specified FTP server and to retrieve the specified file from this server. Once the operation is completed, the TCP/IP stack closes the FTP connection.
Once an IP link is established, the attached host can retrieve a file from an FTP server at any time (except when the TCP/IP stack software is already in a process using TCP resources).
This command is similar to a GET operation (with an automatic connect/disconnect) issued by a standard FTP client on a PC. The TCP/IP stack handles the global FTP process by itself.

Syntax: **AT#FTPGET**

Values: FTPGETFILENAME
FTPGETPATH
FTPPORT
FTPSERV
FTPTYPE
FPTMODE
FTPPW
FTPUN
FTPFILESIZE

#FTPPUT – Upload Files to FTP Server

Definition: This command sent by the attached host directs the TCP/IP stack to connect to the specified FTP server and to upload the data received on the serial port to the specified file on this server. Once the operation is completed, the TCP/IP stack closes the FTP connection.
Once an IP link is established, the attached host can send a file to a FTP server at any time (except when the TCP/IP stack software is already in a process using TCP resources).
This command is similar to a PUT operation (with an automatic connect/disconnect) issued by a standard FTP client on a PC. The TCP/IP stack handles the global FTP put process by itself.
Note: The TCP/IP stack will interpret only an <ETX> character as the end of the file to be transferred if it's not preceded by a <DLE> character. As a consequence, the attached host must send <ETX> characters preceded by <DLE> characters, and it must also code <DLE> characters as <DLE><DLE>.

Syntax: **AT#FTPPUT**

Values: FTPPUTFILENAME
FTPDIR
FTPPORT
FTPSERV
FTPTYPE
FTPMODE
FTPPW
FTPUN
No default

#FTPGETPATH – Set Path to Get a File from the FTP Server

Definition: In order for the TCP/IP stack software to get a file from the FTP server, the TCP/IP stack software must know the path of the relevant file. For example: *ftp.companyx.com/wireless/WPST* or, if you at in the root *ftp.companyx.com*, you can then simply type /

Syntax: **Set/Get File: AT#FTPGETPATH="<value>"**
View Value: AT#FTPGETPATH? or **AT#VFTP, AT#VALL**

Values: Alpha-numeric ASCII text string up to 120 characters.
Note: Depending on the FTP server, the value can be used for getting a file from the root directory of the FTP server. No default.

#FTPPUTPATH – Set Path to Send Files to the FTP Server

Definition: In order for the TCP/IP stack software to send a file to the FTP server, the TCP/IP stack software must know the path of the relevant file. For example: *ftp.companyx.com/wireless/WPST* or, if you at in the root *ftp.companyx.com*, you can then simply type /

Syntax: **Set Value: AT#FTPPUTPATH="<value>"**

View Value: AT#FTPPUTPATH? or **AT#VFTP, AT#VALL**

Values: Alpha-numeric ASCII text string up to 120 characters.

Note: Depending on the FTP server, the value can be used for getting a file from the root directory of the FTP server. No default.

#FTPAPPEND – Append Data to Server

Definition: This command sent by the attached host directs the TCP/IP stack to connect to the specified FTP server and to append the data received on the serial port to the specified file on this server. Once the operation is completed, the TCP/IP stack closes the FTP connection.

Once an IP link is established, the attached host can send a file to a FTP server at any time (except when the TCP/IP stack software is already in a process using TCP resources).

This command is similar to a PUT operation (with an automatic connect/disconnect) issued by a standard FTP client on a PC. The TCP/IP stack handles the global FTP put process by itself.

Syntax: **AT#FTPAPPEND**

Display Command

#VFTP – Display FTP Parameters

Definition: This command directs the TCP/IP stack to display all AT# parameters for the FTP client configuration.

Syntax: **AT#VFTP**

Values:
FTPSERV
FTPPORT
FTPUN
FTPPW
FTPGETFILENAME
FTPPUTFILENAME
FTPPUTPATH
FTPTYPE
FPTMODE

Chapter 5 – TCP Commands for All Universal IP Devices

Set Commands

The **id** parameter is used for setting up profiles; Profile 1 and Profile 2. To view parameters including profile settings, use **AT#<cmd>=id** or **AT#VTCP=id** or **AT#VALL**.

#DLEMODE – Set DLE Mode

Definition: When using socket TCP, the attached host has the choice whether or not to code the ETX character.

Syntax: **Set Value: AT#DLEMODE=id,<DEL Mode value>**
View Value: AT#DLEMODE=id or **AT#VTCP=id, AT#VALL**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: Set the value that the Profile will use:

0 When DLEMODE is set to 0, no specific process is needed on [ETX] characters.
It means that it is not possible for a host to request an end of connection or to receive a clear indication of the end of a connection from the TCP/IP stack.

1 When DLEMODE is set to 1, the [ETX] character means a request or an indication of end of connection.
As a consequence, [ETX] characters that belong to the payload data must be sent by the host on the serial port preceded by a DLE character. Similarly, ETX characters received by the TCP/IP stack from the Internet are sent to the host through the serial port preceded by a DLE character.

Default: **1**

#TCPPORT – Set TCP Port for Remote Peer

Definition: To exchange data over TCP, the TCP/IP stack software must know the port of the remote peer used for the TCP session.

Syntax: **Set Value: AT#TCPPORT=id,<TCP Port number for remote peer value>**
View Value: AT#TCPPORT=id or **AT#VTCP=id, AT#VALL**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: Set the value that the Profile will use:

From 1 to 5 digits (each digit between 0 and 9 inclusive). Note that numbers above 65,535 are illegal as the port identification fields are 16 bits long in the TCP header.

Default: **0**

#TCPSERV – Set Address of Remote TCP Server

Definition: To exchange data over TCP, the TCP/IP stack software must know the address of the remote TCP server (or host) that is to be used.

Syntax: **Set Value: AT#TCPSERV=id,"<Address of remote TCP server value>"**
View Value: **AT#TCPSERV=id** or **AT#VTCP=id,** or **AT#VALL**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: Set the value that the Profile will use:
32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is integrated. No default.

#TCPTXDELAY – Time Delay

Definition: This command determines the time delay introduced before sending a TCP frame that has not been entirely filled with user data. The time is entered in milliseconds, and it should be noted that a value of 0 initiates the sending of a TCP frame as soon as possible after the reception of a single character value from the host.

Syntax: **Set Value: AT#TCPTXDELAY=id,<Time Delay value>**
View Value: AT#TCPTXDELAY=id or **AT#VTCP=id** or **AT#VALL**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: Set the value that the Profile will use:
Integer multiple of 20 between 0 and 32760 inclusive.

Default: **0**

#LTCPSTART – Open Listening Mode

Definition: This command, sent by the attached host, directs the TCP/IP stack to open a listening TCP connection on the specified TCP port.

Once an IP link is established, the attached host can open a listening TCP socket at any time (except when the TCP/IP stack software is already in a process using TCP resources).

The TCP connection will be active upon reception of a TCP connection request sent by a remote allowed TCP peer (TCPSERV) on the appropriate TCP port (TCPPORT).

Once opened, this TCP connection may be closed by the remote TCP peer or by the attached host by sending an ETX character on the serial port (depending on the DLEMODE parameter).

Notes:
The LTCP command can be aborted before an incoming TCP request has been received by issuing an <ETX> character on the serial port.

If the DLEMODE parameter is set to 1, the TCP/IP stack will interpret an <ETX> character only as a close request if a <DLE> character does not precede it. As a consequence, the attached host must send <ETX> characters preceded by <DLE> characters, and it must also code <DLE> characters in <DLE><DLE>. Similarly, each <ETX> character present in the payload data of the TCP frame will be coded by the TCP/IP stack on the serial port as <DLE><ETX>. Each <DLE> character will be coded as <DLE><DLE>. The attached host must then decode the TCP socket flow to remove these escape characters.

If the DLEMODE parameter is set to 0, the TCP/IP stack will never close the TCP connection (unless an error occurs).

Syntax: **AT#LTCPSTART=id**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: DLEMODE
TCPPORT
TCPSERV
TCPTXDELAY

#LTCPSTOP – Close TCP Listening Mode

Definition: This command directs the TCP/IP stack to close a TCP listening mode (previously launched by the AT#LTCPSTART command.

Syntax: **AT#LTCPSTOP=id**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: DLEMODE
TCPPORT
TCPSERV
TCPTXDELAY

#OTCP – Open a TCP Connection

Definition: This command sent by the attached host directs the TCP/IP stack to open a TCP connection to the specified TCP server. Once an IP link is established, the attached host can open a TCP connection at any time (except when the TCP/IP stack software is already in a process using TCP resources).

This TCP connection may be closed by the remote TCP server or by the attached host via sending an ETX character on the serial port (**depending on the DLEMODE parameter**).

DLEMODE Value Notes:

Depending on the DLEMODE value, the attached host may close this TCP connection by sending an ETX character.

- If the DLEMODE parameter is set to 1, the TCP/IP stack will only interpret an <ETX> character as a close request if it's not preceded by a <DLE> character. As a consequence, the attached host must send <ETX> characters preceded by <DLE> characters, and it must also code <DLE> characters in <DLE><DLE>. Similarly, each <ETX> character present in the payload data of the TCP frame will be coded by the TCP/IP stack on the serial port as <DLE><ETX>. Each <DLE> character will be coded as <DLE><DLE>. The attached host must then decode the TCP socket flow to remove these escape characters.
- If DLEMODE is set to 0, the host cannot close the TCP connection (unless an error occurs).

If the remote TCP server closes the connection, the TCP/IP stack sends an ETX character on the serial port.

Syntax: **AT#OTCP=id**

id: Enter a Profile Setting: 1 or 2 {1,2}

Values: DLEMODE
TCPPORT
TCPSERV
TCPTXDELAY

#OUTPORT – UDP/TCP Local Port Number

Definition: Controls the local port that the UDP/TCP connection is bound to.

Syntax: **Set Value: AT#OUTPORT=<Port Number value>**
View Values: AT#OUTPORT? or **AT#VALL**

Values: Set the port number local connection will use:
From 1 to 5 numeric digits (0 to 9).

Note: Numbers above 65,535 are illegal since port identification fields are 16-bits long in the IDP header.

Default: **0**

Display Command

#VTCP – Display TCP Parameters

Definition: This command directs the TCP/IP stack to display all the AT# parameters related to the TCP socket configuration.

Syntax: **AT#VTCP=id** or **AT#VTCP**

Note: If you use **AT#VTCP=id**, the parameters for profile 1 ***or*** profile 2 will display. If you use **AT#VTCP**, the parameters for both Profile 1 and Profile 2 will display.

Example:

Command	Possible Responses
AT#VTCP Note: View TCP parameters of the TCP socket 2	#DLEMODE: 1 , 1 #TCPSERV: 1 , ”... ” #TCPPORT: 1 , 0 #TCPTXDELAY: 1 , 100 #DLEMODE: 2 , 1 #TCPSERV: 2 , ”...” #TCPPORT: 2 , 0 TCPTXDELAY: 2 , 100 OK

Chapter 6 – UDP Commands for All Universal IP Devices

Set Commands

#UDPPORT – UDP Port Number

Description: If the UDP session is initiated in listen mode, use the local UDP port number. If the UDP session is initiated in active mode, use the remote UDP port number.

Syntax: **Set Value: AT#UDPPORT=<Port Number Value>**
View Value: AT#UDPPORT?

Values: From 1 to 5 numeric digits (0 to 9).
Notes: Numbers above 65,535 are illegal as the port identification fields are 16-bits long in the IP header. Port number 0 is illegal.

Default: 1234

#UDPSERV – UDP Server Address

Description: If the UDP session is initiated in listen mode, use the IP address filter. This means that the remote must have a defined UDPSERV IP address. If the UDP session is initiated in active mode, use the remote IP address.

Syntax: **Set Value: AT#UDPSERV=<Value>**
View Value: AT#UDPSERV?

Values: 32-bit number is dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or Alphanumeric ASCII text string up to 120 characters if DNS is integrated. No default.

#UDPTXDELAY – Delay before Sending UDP Datagram

Description: This parameter determines the delay before sending an UDP datagram that has not been entirely filled with user data. The delay is expressed in milliseconds. The 0 value initiates the sending an UDP datagram as soon as possible after the reception of a single character value from the host.

Syntax: **Set Value: AT#UDPTXDELAY=<Value>**
View Value: AT#UDPTXDELAY?

Values: Integer, multiple of 20 and between 0 and 32760 inclusive.

Default Value: **100**

#LUDPSTART – Initiate the UDP Session in Listen Mode

Description: Once an IP link is established, and if no other TCP/IP stack resource is active, this command sent by the attached host directs the TCP/IP stack to initiate the UDP session in listen mode on the specified UDP local port UDPPORT.

Syntax: **Set Value: AT#LUDPSTART**

Values: UDPPORT
UDPSESRV
UDPTXDELAY
No default

#LUDPSTOP – Close UDP Listening Mode

Description: This command directs the TCP/IP stack to close a UDP listening mode session previously launched by the AT#UDPSTART command.

Syntax: **Set Value: AT#LUDPSTOP**

Values: UDPPORT (No default)

#OUDP – Initiate UDP Session in Active Mode

Description: Once an IP link is established, and if no other TCP/IP stack resource is active, this command sent by the attached host directs the TCP/IP stack to initiate an UDP session in active mode on the specified UDP remote port UDPPORT to the specified remote IP address UDPSERV.

The host can then transmit to the UDPPORT or UDPSERV address. Datagrams can only be received from this UDPPORT or UDPSERV address.

Syntax: **Set Value: AT#UDPOPEN**

Values: UDPPORT
UDPSERV
UDPTXDELAY
No default

Display Command

#VUDP – Display UDP Module Configuration

Description: Directs the TCP/IP stack to display all the AT# parameters related to the UDP socket configuration.

Syntax: View Values: **AT#VUDP**

Values: UDPPORT
UDPSERV
UDPTXDELAY
No default.

Chapter 7 – PING Commands for All Universal IP Devices

Set Commands

#PINGNUM – Number of PING Requests

Definition: This command sets the number of PING echo requests to issue to PINGREMOTE.

Syntax: **Set Value: AT#PINGNUM=<Value>**
View Value: AT#PINGNUM? or **AT#VPING, AT#VALL**

Values: From 0 to 255 inclusive. (If 0, ping indefinite until ETX (0x03) is issued)

Default: **4**

#PINGREMOTE – IP Address of PING Request

Definition: Sets the IP address up of the remote device to ping.

Syntax: **Set Value: AT#PINGREMOTE="<IP Address Value>"**
View Value: AT#PINGREMOTE? or **AT#VPING, AT#VALL**

Values: 32-bit number is dotted-decimal notation (i.e., xxx.xxx.xxx.xxx). No default.

#PING – Start PING Request

Definition: Directs the module to start PING requests to the configured PING remote address. No of requests to be sent is obtained from the PINGNUM parameter.

Syntax: **Set Value: AT#PING**
View Value: AT#PING?

Values: Read parameters: (read from serial flash predefined before starting the ping command.)
PINGNUM
PINGREMOTE

#PINGDELAY – PING Delay Time

Definition: This command sets the waiting delay, in seconds, before an echo request is considered as a ***no reply***. It is also the delay between two echo requests (if PINGNUM > 1).

Syntax: **Set Value: AT#PINGDELAY=<Value>**
View Value: AT#PINGDELAY?

Values: From 1 to 255 inclusive.

Default: **1**

Display Command

#VPING – Display PING Parameters

Definition: Display PING module related information.

Syntax: **Set Value: AT#VPING**
View Value: AT#PING?

Values Displayed:

PINGNUM
PINGREMOTE
PINGENABLE
PINGDELAY

Part 2 – Commands for the SocketEthernet IP

Chapter 8 – General Commands for the SocketEthernet IP (MT100SEM-IP)

Chapter 9 – Auto Discovery Commands for the SocketEthernet IP (MT100SEM-IP)

Chapter 8 – General Commands for the SocketEthernet IP (MT100SEM-IP)

Set Commands

#DHCP – DHCP On or Off

Description: Enables or disables the DHCP client. If the DHCP client is enabled, the module will take the IP address from DHCP server. If DHCP client is disabled, the module will take the static IP address configured for the module.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#DHCP=<0,1>**
View Value: AT#DHCP?

Responses: **AT#DHCP=0** returns **OK**
AT#DHCP? returns **0** and **OK**

Values: **AT#DHCP=0** Turn off DHCP (sets IP Address, Netmask, and Gateway back to defaults)
AT#DHCP=1 Turn on DHCP (automatically assigns IP Address, Netmask, and Gateway)

Default: **0**

#IPADDR – Set Static IP Address

Description: Sets the static IP Address.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#IPADDR="<IP Address value>"**
View Value: AT#IPADDR?

Responses: **AT#IPADDR =192.168.1.10** returns and **OK**
AT#IPADDR? returns **192.168.1.10 (Manually Configured)** and **OK**

Values: IP Address in dotted decimal notation **(xxx.xxx.xxx.xxx)** "x" stands for a number between 0-255. 255 is the maximum value in an xxx group.

Default: **192.168.2.3**

#IPGATEWAY – Set Gateway Address

Description: Sets the default gateway address. The view of get command shows whether the address is statically configured or obtained from the DHCP server.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#IPGATEWAY="<gateway address value>"**
View Value: AT#IPGATEWAY?

Responses: **AT#IPGATEWAY =192.168.1.11** returns and **OK**
AT#IPGATEWAY? returns **192.168.1.11 (Manually Configured)** and **OK**

Values: IP Address in dotted decimal notation (**xxx.xxx.xxx.xxxx**). "x" = a number between 0-255.

Default: **192.168.2.1**

#IPNETMASK – Set Subnet Mask

Description: Sets the subnet mask.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#IPNETMASK="<Subnet Mask value>"**
View Value: AT#IPNETMASK?

Responses: **AT#IPNETMASK = 255.255.255.0** returns and **OK**
AT#NETMASK? returns **255.255.255.0 (Manually Configured)** and **OK**

Values: IP Address in dotted decimal notation (**xxx.xxx.xxx.xxxx**). "x" = a number between 0-255.

Default: **255.255.255.0**

#DNSSERV1 – Set DNS Server IP Address

Definition: In order to translate the server names from literal format into IP addresses, the TCP/IP stack software implements the Domain Name System (DNS) protocol. The DNS Server IP address must be specified for use by the TCP/IP stack software.

Syntax: **Set Value: AT#DNSSERV1="<value>"**
View Value: AT#DNSSERV1?

Responses: **AT# DNSSERV1=192.168.0.1** returns and **OK**
AT# DNSSERV1? returns **192.168.0.1** and **OK**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx).

Default: **202.56.215.6**

#DNSSERV2 – Set Secondary DNS Server

Definition: In order to translate the server names from literal format into IP addresses, the TCP/IP stack software implements the Domain Name System (DNS) protocol. The DNS Server IP address has to be specified for use by the TCP/IP stack software. This secondary DNS server is used in the case where the primary DNS server does not respond to a request.

Syntax: **Set Value: AT#DNSSERV2="<value>"**
View Value: AT#DNSSERV2?

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx).

Default: **202.56.230.6**

Note: The Universal IP resolver (DNS Client) has a list that holds up to 4 DNS servers, the first 2 in the list are populated by the #DNSSERV1 and #DNSSERV2 commands, the 3rd and 4th are populated by DNS information provided by the ISP or cellular carrier. The list is checked in order (1-4). This means that user configured name servers will be checked before dynamically assigned name servers.

#EMACSPD – Set Ethernet Connection

Description: Sets the Ethernet connection at 10 or 100 full or half duplex.

Syntax: **AT#EMACSPD=x** where x stands for 0,1,2,3,4

Values:

AT#EMACSPD=0	Auto Sensing
AT#EMACSPD=1	10Mbis half duplex
AT#EMACSPD=2	10Mbis full duplex
AT#EMACSPD=3	100Mbis half duplex
AT#EMACSPD=4	100Mbis full duplex
AT#EMACSPD?	View the current setting. Can view with AT#VALL or AT#VIP also.

Default: **AT#EMACSPD=0**

Display Commands

#ETHIFSTATUS – View Network Interface Settings

Description: Display the address settings.

Syntax: **AT#ETHIFSTATUS**

Values: None

Display Example:
INTERFACE: UP
LINK: UP
IPADDR: 192.168.2.3
IPGATEWAY: 192.168.2.1
IPNETMASK: 255.255.255.0
MACADDR: 00:00:00:00:00:00
DNSSERV1: 0.0.0.0.
DNSSERV2: 0.0.0.0.
DNSSERV3: 0.0.0.0.
DNSSERV4: 0.0.0.0.

#VDNS – Display Configuration of DNS Servers

Description: This command the TCP/IP stack to display all AT# parameters related to the configuration of the DNS servers. Note: This is displayed only when DHCP is OFF.

Syntax: **View: AT#VDNS**

Values: None

#VIP – View Address Settings

Description: Displays the address settings.

Notes: This command displays the programmed IP settings. To see IP settings in use, including DHCP parameters, use the #ETHIFSTATUS command.

Also, this command shows valid results only when DHCP is OFF. Otherwise, it displays the default or stored values.

Syntax: **AT#VIP**

Values: None

Display Example: The order and content is as follows:
DHCP (Enable/Disable)
IP address
Subnet Mask
Default Gateway
Speed setting (see #EMACSPD command)
MAC address

Chapter 9 – Auto Discovery Commands for the SocketEthernet IP (MT100SEM-IP)

A Note about Auto Discovery: Auto Discovery will broadcast information; however, at this time, the information cannot be updated using the Auto Discovery Manager.

Set Commands

#AUTODISC – Auto Discovery On/Off

Definition: This command turns Auto Discovery On or Off.

Syntax: **Set Value: AT#AUTODISC=<value>**
View Value: **AT#AUTODISC?** or **AT#VAUTODISC, AT#VALL**

Values:

0	OFF
1	ON

Default: **1**

#AUTODISCTIMER – Auto Discovery Timer

Definition: This command sets the Auto Discovery timer.

Syntax: **Set Value: AT#AUTODISCTIMER=<value>**
View Value: AT#AUTODISCTIMER? or **AT#VAUTODISC, AT#VALL**

Values: 0 to 60 seconds

Default: **10**

#AUTODISCPORT – Auto Discovery Port

Definition: This command sets the Auto Discovery port.

Syntax: **Set Value: AT#AUTODISCPORT=<value>**
View Value: AT#AUTODISCPORT? or **AT#VAUTODISC, AT#VALL**

Values: 0 to 65535

Default: **1020**

#AUTODISCHOST – Set Auto Discover Host Name

Definition: This command sets the Host Name that will appear in the Auto Discovery Manager.

Syntax: **Set Value: AT#AUTODISCHOST ="<value>"**
View Value: AT#AUTODISCHOST? or **AT#VAUTODISC** or **AT#VALL**

Values: Alphanumeric ASCII text string up to 120 characters.

Default: **MT100SEM**

#AUTODISCUSERNAME – Set Auto Discover User Name

Definition: This command sets the User Name that will appear in the Auto Discovery Manager.

Syntax: **Set Value: AT#AUTODISCUSERNAME =<setting>**

View Value: AT#AUTODISCUSERNAME? or **AT#VAUTODISC** or **AT#VALL**

Values: Text string up to 120 characters. No default.

#AUTODISCPASSWORD – Sets Auto Discover Password

Definition: This command sets the Password that will appear in the Auto Discovery Manager.

Syntax: **Set Value: AT#AUTODISCPASSWORD =<setting>**

View Value: AT#AUTODISCPASSWORD? or **AT#VAUTODISC** or **AT#VALL**

Values: Text string up to 120 characters. No default.

Display Command

#VAUTODISC – Display Auto Discovery Commands

Definition: This command displays all the AT# parameters related to the Auto Discovery configuration.

Syntax: **AT#VAUTODISC**

Display Example:

#AUTODISC: 1
#AUTODISCPORT: 1020
#AUTODISCTIMER: 10
#AUTODISCHOST: MT100SEM
#AUTODISCUSERNAME: "admin"
#AUTODISCPASSWORD: ""

Part 3 – Commands for SocketWireless Wi-Fi Devices

Chapter 10 – IP Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Chapter 11 – General Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Chapter 12 – Telnet Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Chapter 13 – WLAN Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Chapter 10 – IP Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Set Commands

#DHCP – DHCP On or Off

Description: Enables or disables the DHCP client. If the DHCP client is enabled, the module will take the IP address from DHCP server. If DHCP client is disabled, the module will take the static IP address configured for the module.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#DHCP=<0,1>**
View Value: AT#DHCP?

Values: **AT#DHCP=0** Turn off DHCP (sets IP Address, Netmask, and Gateway back to defaults)
AT#DHCP=1 Turn on DHCP (automatically assigns IP Address, Netmask, and Gateway)

Default: **0**

#IPADDR – Set Static IP Address

Description: Sets the static IP Address.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#IPADDR="<IP Address value>"**
View Value: AT#IPADDR?

Values: IP Address in dotted decimal notation **(xxx.xxx.xxx.xxx)** "x" stands for a number between 0-255. 255 is the maximum value in an xxx group.

Default: **192.168.2.3**

#IPGATEWAY – Set Gateway Address

Description: Sets the default gateway address. The view of get command shows whether the address is statically configured or obtained from the DHCP server.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#IPGATEWAY="<gateway address value>"**
View Value: AT#IPGATEWAY?

Values: IP Address in dotted decimal notation (**xxx.xxx.xxx.xxxx**). "x" = a number between 0-255.

Default: **192.168.2.1**

#IPNETMASK – Set Subnet Mask

Description: Sets the subnet mask.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#IPNETMASK="<Subnet Mask value>"**
View Value: AT#IPNETMASK?

Values: IP Address in dotted decimal notation (**xxx.xxx.xxx.xxxx**). "x" = a number between 0-255.

Default: **255.255.255.0**

#IPDNSSERV – Configure the DNS Server

Definition: Enables the DNS server. By default, DNS is enabled. Use this command before using DNS services.

Syntax: **Set Value: AT#IPDNSSERV**

Values: **AT#IPDNSSERV=0** Disables DNS
AT#IPDNSSERV=1 Enable DNS

Default: **1** (Enable DNS)

#DNSSERV1 – Set DNS Server IP Address

Definition: In order to translate the server names from literal format into IP addresses, the TCP/IP stack software implements the Domain Name System (DNS) protocol. The DNS Server IP address must be specified for use by the TCP/IP stack software.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#DNSSERV1="<value>"**
View Value: AT#DNSSERV1?

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx).

Default: **202.56.215.6**

#DNSSERV2 – Set Secondary DNS Server

Definition: In order to translate the server names from literal format into IP addresses, the TCP/IP stack software implements the Domain Name System (DNS) protocol. The DNS Server IP address has to be specified for use by the TCP/IP stack software. This secondary DNS server is used in the case where the primary DNS server does not respond to a request.

Syntax: **Set Value: AT#DNSSERV2="<value>"**
View Value: AT#DNSSERV2?

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx).

Default: **202.56.230.6**

Note: The Universal IP resolver (DNS Client) has a list that holds up to 4 DNS servers, the first 2 in the list are populated by the #DNSSERV1 and #DNSSERV2 commands, the 3rd and 4th are populated by DNS information provided by the ISP or cellular carrier. The list is checked in order (1-4). This means that user configured name servers will be checked before dynamically assigned name servers.

#IPRELEASE – Release a DHCP Address Assigned by the Server

Description: In order to gracefully release a DHCP address assigned by the server, the module should issue a command of DHCPRELEASE.
Syntax: **AT#IPRELEASE**
Response: **AT#IPRELEASE** returns **OK**

#IPRENEW – Renew the DHCP Information from the Server

Description: The DHCP client can renew the DHCP information from the server. On completion of lease time, the DHCP client will automatically renew the DHCP information. Before that, if the client wants to renew the information, it can use this command.
Syntax: **AT#IPRENEW**
Response: **AT#IPRENEW** returns **OK**

#IPQUERY – Give a Domain Name

Description: Sends a query to the DNS server to resolve the name.
Syntax: **AT#IPQUERY=<Host Name>**
Response: **OK**
Values: Host name in alpha-numeric string format. Example: www.google.com. No default.

#IPRESOLV – To Observe Whether There Is a Connection with DNS or Not

Description: If the DNS client is successful in resolving the host name, this command shows the IP address of the resolved host name. If the DNS client fails to resolve, it shows error message.
Syntax: **View: AT#IPRESOLV=<Host Name>**
Values: Host name in alpha-numeric string format. No default.

S0= – Automatic Answer

Description: Sets automatic answering of TCP or UDP connections.
Syntax: **ATS0=**
Values: **ATS0=0** Manually answer
ATS0=1 Automatically answer
No default.

Display Commands

#IPDNSTABLE – Display DNS Table

Description: This command displays the DNS table containing the list of queried Host names, corresponding to their resolved IPs.

Syntax: **View: AT#IPDNSTABLE**

Response: **AT#IPDNSTABLE** returns **Name: WWW.GOOGLE.COM, IP Address: 59.100.107.97**
OK

Values: None

#VDNS – Display Configuration of DNS Servers

Description: This command the TCP/IP stack to display all AT# parameters related to the configuration of the DNS servers.

Syntax: **View: AT#VDNS**

Response: **AT#VDNS** returns:
#DNSSERV1: "0.0.0.0"
#DNSSERV2: "0.0.0.0"
OK

Values: None

#VIP – View Address Settings

Description: Displays the address settings.

Syntax: **AT#VIP**

Response: AT#VIP returns:
#DHCP: 0
#IPADDR: "192.168.1.100"
#IPNETMASK: "255.255.255.0"
#IPGATEWAY: "192.168.1.1"
#MACADDR: "00:08:00:12:34:dd" (Mac address is displayed)
#DNSSERV1: "0.0.0.0"
#DNSSERV2: "0.0.0.0"
OK

Values: None

Display Example: The order and content is as follows:
DHCP (Enable/Disable)
IP address
Subnet Mask
Default Gateway
MAC address
Primary DNS
Secondary DNS

Chapter 11 – General Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Set Commands

A – Manual Answer of a TCP or UDP Connection

Description: Manual answer of a TCP or UDP connection.

Syntax: **ATA**

Example:
1. AT#WLANENABLE=1
2. Give command ATS0=0
3. Connect a TCP connection using command AT#TCPSTART=1/2
   OK
   RING… <ATA is issued>
4. Ok_Info_WaitingForData

S2 – Escape Sequence

Description: Use this command to change the character for the escape sequence.

Syntax: Set Value: **ATS2=<+>**

Values: 'c' value, which is used as the escape sequence

Default: '+'

Example:
ATS2?
+
OK
ATS2=+
OK
ATS2?
+
OK

A/ – Previous Command

Description: This command executes the previous command.

Syntax: **A/**

Values: No parameter values.

#BOOTMSG – Enable/Disable Boot Message

Description: Enables/disables the boot message.

Syntax: **Set Value: AT#BOOTMSG=<0,1>**
View Value: AT#BOOTMSG?

Values: **0** Disable
1 Enable

Default: **1** Enable

Examples:
```
AT#BOOTMSG?
0
OK
AT#BOOTMSG=1
OK
AT#BOOTMSG?
1
OK
AT#BOOTMSG=0
OK
```

#WATCHDOG – Enable/Disable Watchdog

Description: Enable/disable Watchdog for the system – reset on HANG.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WATCHDOG=<0,1>**
View Value: **AT#WATCHDOG?**

Values: **0** Disable Watchdog
1 Enable Watchdog

Default Value: **1** Enable Watchdog

Example:
```
AT#WATCHDOG?
1
OK
```

#WATCHDOGTIMER – Watchdog Timer

Description: Sets the Watchdog timer in milliseconds.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WATCHDOGTIMER=<value>**
View Value: AT#WATCHDOGTIMER?

Values: Maximum milliseconds that can be entered is 7000

Default: 1000ms

Example:
```
AT#WATCHDOGTIMER?
4000
OK
```

Chapter 12 – Telnet Commands for the SocketWireless Wi-Fi (MT810SWM-IP) and the SocketEthernet IP (MT100SEM-IP)

NOTE: The Telnet commands are also used by the SocketEthernet IP (MT100SEM-IP).

Set Commands

#TELNET – Start/Stop Telnet Session

Description: Starts and stops a Telnet session.
Note: The module must be reset to put the command into effect.
Syntax: **AT#TELNET=<0,1>**
Values: AT#TELNET=**0** Stop Telnet session.
AT#TELNET=**1** Start Telnet session; wait for remote to Telnet in.
Display: AT#TELNET**?** Indicates whether a Telnet session has been started.
Default: **0**
Example:
```
AT#TELNET?
0
OK
```

#TELNETPORT– Set Telnet Port

Description: Sets Telnet port.
Note: The module must be reset to put the command into effect.
Syntax: **AT#TELNETPORT = <port number>**
Values: 1 to 65535
Display: AT#TELNETPORT? or AT#VTELNET or AT#VALL Displays the port number or all Telnet settings or all values.
Default: **23**
Example:
```
AT#TELNETPORT?
23
OK
```

#TELNETUSER – Set Telnet User

Description: Sets Telnet user.
Note: The module must be reset to put the command into effect.
Syntax: **AT#TELNETUSER= "<64 char string>"**
Display: AT# TELNETUSER? or AT#VTELNET or AT#VALL Displays the user (64 char string) or all Telnet settings or all values.
Default: **admin**
Example:
```
AT#TELNETUSER?
admin
OK
```

#TELNETPASSWORD – Set Telnet Password

Description: Sets Telnet password.

Note: The module must be reset to put the command into effect.

Syntax: **AT# TELNETPASSWORD = "<64 char string>"**

Display: AT# TELNETPASSWORD? or AT#VTELNET or AT#VALL Displays the password (64 char string) or all Telnet settings or all values.

Default: " "

Example:
AT#TELNETPASSWORD?
admin
OK

Display Command

#VTELNET – View Telnet Settings

Description: Displays all Telnet settings.

Syntax: **AT# VTELNET**

Display: Displays all Telnet settings.

Example:
at#vtelnet
#TELNET: 0
#TELNETPORT: 23
#TELNETUSER: "admin"
#TELNETPASSWORD: "admin"
OK

Chapter 13 – WLAN Commands for the SocketWireless Wi-Fi (MT810SWM-IP)

Set Commands

#WLANSECURITYMODE – Security Mode of WLAN Module

Description: Sets the Wireless LAN security mode.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANSECURITYMODE =<value>**
View Value: AT#WLANSECURITYMODE?

Values:
0 Security Disable
1 WEP64 Security
2 WEP128 Security
3 WPA Security
4 WPA2 Security

Default: **0** Security Disable

#WLANNETWORKMODE – WLAN Network Mode

Description: Sets the wireless LAN network mode.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANNETWORKMODE =<value>**
View Value: AT#WLANNETWORKMODE?

Values:
0 Infrastructure mode
1 Ad – Hoc mode

Default: **0** Infrastructure mode

#WLANCOUNTRYCODE – Country Code

Description: Sets country code. Different countries have different restrictions on Wireless LAN parameters like operating channels and transmit power. To make it operable, the country code can be set by using this AT command.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANCOUNTRYCODE ="<value>"**
View Value: AT#WLANCOUNTRYCODE?

Values:
Country Code FCC - US:
AT#WLANCOUNTRYCODE="DOMAIN_FCC"
Supported Channels - Channel 1 to channel 11
Country Code IC - Canada:
AT#WLANCOUNTRYCODE="DOMAIN_IC"
Supported Channels - Channel 1 to channel 11
Country Code ETSI - Europe:
AT#WLANCOUNTRYCODE="DOMAIN_ETSI"
Supported Channels - Channel 1 to channel 13
Country Code Spain:
AT#WLANCOUNTRYCODE="DOMAIN_SPAIN"
Supported Channels - Channel 10 to channel 11

Country Code France:
AT#WLANCOUNTRYCODE="DOMAIN_FRANCE"
Supported Channels - Channel 10 to channel 13
Country Code MKK:- JAPAN
AT#WLANCOUNTRYCODE="DOMAIN_MKK"
Supported Channels - Channel 14

Default: **DOMAIN_FCC (For US)**

#WLANSCANMODE – Scanning Mode

Description: Sets scanning mode. The module can work in both active scanning and passive scanning modes. In active scanning, the module actively sends a probe request to associate with the AP, and in passive scanning, the module waits for a beacon from the AP and then it associates.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANSCANMODE =<value>**
View Value: AT#WLANSCANMODE?

Values: **0** Active scanning
1 Passive scanning

Default: **0** Active scanning

#WLANSSID – SSID of WLAN

Description: Sets the WLAN network SSID.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANSSID ="<value>"**
View Value: AT#WLANSSID?

Values: Alphanumeric ASCII Text String of up to 32 characters. It will take a blank space also.

Default: mt810swm_disable

#WLANDATARATE – WLAN Transmission Data Rate

Description: Sets the WLAN transmission data rate. "Auto" can be used for auto data rate during data transfer.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANDATARATE=<value>**
View Value: AT#WLANDATARATE?

Values: Auto, 1, 2, 5.5, 9, 11, 12, 24, 36, 48, 54 (in Mbps)

Default: 11 (in Mbps)

#WLANIBSSCHANNEL – Channel for Ad-Hoc Mode

Description: Sets channel for Ad-Hoc mode.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANIBSSCHANNEL=<value>**
View Value: AT#WLANIBSSCHANNEL?

Values: 1 – 13

Default: 9

#WLANCONNECT – Connect with AP

Description: Connects the module with AP.

Syntax: **Set Value: AT#WLANCONNECT**

Values: None

Example:
at#wlanconnect
SSID : WestConfRoom
RSSI : -52
Network : BSS
Security : No Enc
Capability : 0x1
Channel : 5
WLAN Mode : B Mode
BSSID : 00:13:D3:7B:A3:6A
OK

#WLANDISCONNECT – Disconnect with AP

Description: Disconnects the module with AP.

Syntax: **Set Value: AT#WLANDISCONNECT**

Values: None

Example:
AT#WLANDISCONNECT
OK

#WLANENABLE – Auto Connect Module with AP

Description: On power up, this parameter determines whether to connect to the AP automatically or manually. Connection to the AP can be established by **AT#WLANCONNECT** command. A value of 0 means the module will not connect to AP automatically. A value of 1 means that on power up the module tries to connect to the AP for configured settings.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANENABLE=<value>**
View Value: AT#WLANENABLE?

Values:
0 Manual connection to the AP
1 Automatic connection to the AP

Default: **0**

#WLANDOZE= – Moves Module into or out of Power Save

Description: This command moves the module into or out of Power Save during an active connection.

Syntax: **Set Value: AT#WLANDOZE=**
Query: AT#WLANDOZE?

Values:
0 Power active mode
1 Power doze mode

#WLANPROFILE – Load the WLAN Profile

Description: This command is used to set the WLAN profile from the WLAN Profile text file using "Send Text File" option on HyperTerminal at the module. If all four profiles are successfully loaded, then HyperTerminal shows an **OK** message.

Note: The WLAN Profile text file contains all four WLAN profile <1-4> configuration parameters that are automatically loaded using this command.

Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANPROFILE<value>?**

Examples:
AT#WLANPROFILE1?
AT#WLANPROFILE2?
AT#WLANPROFILE3?
AT#WLANPROFILE4?

#WLANPROFILEn=n – Change the WLAN Profile

Description: This command changes the WLANPROFILE with the help of AT Commands.

Syntax: **Set Value:** AT#WLANSETPROFILEn=n,"<SSID>",<Security Mode>,<Key Index>, "< Passphrase>", where n=1,2,3,4

View Value: AT#WLANSETPROFILEn?

Values: n=1,2,3,4

Parameters:
ssid = up to 32 characters ssid
security mode = 0 (no encryption)
1 (wep64)
2 (wep128)
3 (wpa-psk)
4 (wpa2-psk)
keyindex = 1 to 4 applicable for security option (1-4)
passphrase = ASCII text string of *hexadecimal numbers* applicable for security modes 1-2.
passphrase = ASCII *text string* applicable for security modes 3-4.
(10 ASCII text string of *hexadecimal numbers* for wep64)
(26 ASCII text string of *hexadecimal numbers* for wep128)
(8-63 ASCII *text string* for wpa-psk)
(8-63 ASCII *text string* for wpa2-psk)

Notes: **Keyindex** and **passphrase** are not applicable for security option (0)

Examples:
AT#WLANPROFILE1=1,"MT_NOENC",0 (for no encryption mode)
AT#WLANPROFILE2=2,"MT_WEP64",1,1,"1234567890" (for wep64 key)
AT#WLANPROFILE3=3,"MT_WEP128",2,1,"12345678901234567890123456"(for wep128)
AT#WLANPROFILE4=4,"MT_WPA",3,1,"12345678" (for WPA psk mode)
AT#WLANPROFILE4=4,"MT_WPA2",4,1,"12345678" (for WPA2 psk mode)

#WLANSCAN – Scan Wireless Networks

Description: Scans all the APs (access points) in the environment and displays information about their settings and capabilities on HyperTerminal or similar program.

Syntax: **AT#WLANSCAN**

Example:
ESSID: Plan B
BSSID: 00:08:00:C0:30:99
Channel Num: 6
RSSI: -61
Network Type: BSS
Security: No Enc
Capability: 0x1
WLAN Mode: B Mode

#WLANUSEPROFILE – User Profile

Description: Sets and displays the use profile value. If user profile value is set to any value between 1 and 4, then at the time of user name association, the module first scans for the selected user profile parameters.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value:** AT#WLANUSEPROFILE=<value>
View Value: AT#WLANUSEPROFILE?

Values: 1 – 4

#WLANGETRSSI – Received Signal Strength

Description: This command displays the current received signal strength.

Syntax: Set Value: **AT#WLANGETRSSI**

Response Values: Return a signal strength value from -256 to 255.

Example:
AT#WLANGETRSSI
RSSI : 0
OK

#WLANACTIVATE – Move Module out of Power Save

Description: This command moves the module out of Power Save during an active connection. See #WLANDOZE
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANACTIVATE**

Values: NA

#WLANROAM – Enable/Disable Roaming

Description: This command enables/disables automatic roaming of the module when the wireless connection is lost by the Access Point.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WLANROAM**

Values:
0 Disable Auto Roam
1 Enable Auto Roam

Default: **1**

#WEP64KEY – Keys for WEP64 Security Mode

Description: Sets keys for WEP64 Security mode.
Note: The module must be reset to put the command into effect.

Syntax: **Set Value: AT#WEP64KEYn ="<value>"**
View Value: AT#NWEP64KEYn?

Values: ASCII text string of 10 hexadecimal characters. Valid characters include 0-9, a-f or A-F

Default: 6162636465

#WEP128KEY – Keys for WEP128 Security Mode

Description: Sets keys for WEP128 Security mode.
Note: The module must be reset to put the command into effect.
Syntax: **Set Value: AT#WEP128KEYn ="<value>"**
View Value: AT#WEP128KEYn?
Values: ASCII text string of 26 hexadecimal characters; valid characters include: 0-9, a-f or A-F
Default: 12345678901234567890123456

#WPAPSKKEY – Keys for WPA PSK Security Mode

Description: Sets keys for WPA PSK security mode.
Syntax: **Set Value: AT# WPAPSKKEYn ="<value>" n=1-4**
View Value: AT# WPAPSKKEYn?
Values: ASCII text string of 8 to 64 hexadecimal characters; e.g., 1234567890. They can include any ASCII character from 32-126 decimal.
Default: 1234567890

#WPA2PSKKEY – Keys for WPA2 PSK Security Mode

Description: Sets keys for WPA2 PSK security mode.
Syntax: **Set Value: AT# WPA2PSKKEYn ="<value>" n=1-4**
View Value: AT# WPA2PSKKEYn?
Values: ASCII text string of 8 to 64 hexadecimal characters; e.g., 1234567890. They can include any ASCII character from 32-126 decimal.
Default: 1234567890

#WEPKEYID – Set the Default TX Key Index

Description: Sets the default Transmission Key used for data encryption in WEP.
Note: The module must be reset to put the command into effect.
Syntax: **Set Value: AT#WEPKEYID=<value>**
Values: **1 – 4**
Default Value: **1**
Example: AT#WEP?
WEPKEYID:1
OK

#WLANPOWERSAVE – Enable Power Save at Boot

Description: This command sets the Power Save at the Boot Works after the Power Cycle.
Syntax: **Set Value: AT#WLANPOWERSAVE=<value>**
Values: **0** Power Save Disabled
1 Power Save Enabled
Default: **0**

Display Command

#WEP? – See the Value of the WEP Keys

Description: This command displays the values of the WEP keys.

Syntax: **View Value: AT#WEP?**

Values:
WEP64KEY1:"6162636465"
WEP64KEY2:"6162636465"
WEP64KEY3:"6162636465"
WEP64KEY4:"6162636465"
WEP128KEY1:"12345678901234567890123456"
WEP128KEY2:"12345678901234567890123456"
WEP128KEY3:"12345678901234567890123456"
WEP128KEY4:"12345678901234567890123456"
WPAPSKKEY1:"1234567890"
WPAPSKKEY2:"1234567890"
WPAPSKKEY3:"1234567890"
WPAPSKKEY4:"1234567890"
WPA2PSKKEY1:"1234567890"
WPA2PSKKEY2:"1234567890"
WPA2PSKKEY3:"1234567890"
WPA2PSKKEY4:"1234567890"

#WLANPROFILE – Display the WLAN Profile

Description: This command displays the WLAN profile parameters based on the profile ID.

Syntax: **Set Value: AT#WLANSETPROFILE<value>?**

Values: 1 – 4

Examples:
AT#WLANPROFILE1?
profile id :1
SSID :Adhoc
security :0
OK

AT#WLANPROFILE2?
profile id :2
SSID :mt810swm_wep64
security :1
Keyindex :1
passphrase :1234567890
OK

AT#WLANPROFILE3?
profile id :3
SSID :mt810swm_wep128
security :2
Keyindex :1
passphrase :12345678901234567890123456
OK

AT#WLANPROFILE4?
profile id :4
SSID :mt810swm_wpapsk
security :3
Keyindex :1
passphrase :12345678
OK

#WLAN? – WLAN Module

Description: Displays WLAN module-related information.

Syntax: **View Values: AT#WLAN?**

Values:

SECURITYMODE	SSID
NETWORKMODE	IBSSCHANNEL
COUNTRYCODE	DATARATE
SCANMODE	WLANENABLE
TXPOWER(dBm)	MACADDR

Default: None

Example:

```
at#wlan?
#SECURITYMODE: 0
#NETWORKMODE: 0
#COUNTRYCODE: "DOMAIN_FCC"
#SCANMODE: 0
#TXPOWER: NA
#SSID: "WestConfRoom"
#IBSSCHANNEL: 9
#DATARATE: 11.0
#WLANENABLE: 0
#MACADDR: "00:08:00:12:34:dd"
OK
```

#WLANASSOCINFO – Display Association Information

Description: This command displays the channel and BSSID of the current association.

Syntax: **Set Value: AT#WLANASSOCINFO**

Values: NA

Example:

```
AT#WLANASSOCINFO
SSID : WestConfRoom
RSSI : -52
Network : BSS
Security : No Enc
Capability : 0x1
Channel : 5
WLAN Mode : B Mode
BSSID : 00:13:D3:7B:A3:6A
OK
```

Part 4 – Commands for the SocketModem iCell, SocketModem IP, and MultiModem iCell

Chapter 14 – Commands for the Following Devices

SocketModem iCell (MTSMC-G2-IP)
SocketModem IP (MT5692SMI-IP) (when in IP mode)
MultiModem iCell (MTCMR-G/C/H/E) (when in IP mode)

Chapter 14 – Commands for the SocketModem iCell, SocketModem IP, and MultiModem iCell

These commands are for the following products
SocketModem iCell (MTSMC-G2-IP)
SocketModem IP (MT5692SMI-IP) This SocketModem uses these commands when it is in IP mode.
MultiModem iCell (MTCMR-G/C/H/E) This MultiModem uses these commands when it is in IP mode.

Set Commands

+WOPEN – Set IP Mode or Modem Mode

Definition: This command sets the mode of operation.

Syntax: **Set Value: AT+WOPEN=<value>**
View Value: AT+WOPEN? (Displays the current mode of operation).

Values: **0** Modem Mode
1 IP Mode

Default: **1**

#AUTHENT – Authentication Type

Definition: This command sets the PPP authentication type: PAP, CHAP, or NONE.

Syntax: **Set Value: AT#AUTHENT="<value>"**
View Value: AT#AUTHENT? (Displays current PPP authentication type).

Values: PAP
CHAP
NONE

Default: NONE

#ANSWERMODE – Set Answering Mode

Definition: The TCP/IP stack can handle incoming calls. This parameter defines how the TCP/IP stack will behave when receiving an incoming call.

Syntax: **Set Value: AT#ANSWERMODE=<value>**
Get Value: AT#ANSWERMODE? or AT#VPHY, AT#VALL

Values:

0 **Ignore.** Ignores the incoming call. In this case, it is the responsibility of the host to accept/not accept the incoming call by issuing the AT#ACCEPT command.

1 **Automatic Answer.** The TCP/IP stack goes off hook and accepts the incoming call. As described below, the calling number must match the one specified in the CALLSCREENNUM parameter. (The RINGCOUNT parameter must be > 0).

2 **Static Callback.** The TCP/IP stack ignores the incoming call and then automatically dials (DIALN1 or DIALN2 determined by the DIALSELECT parameter) by issuing an AT#CONNECTIONSTART command. The calling number must match the one specified in the CALLSCREENNUM parameter. The RINGCOUNT parameter must be > 0.

3 **Dynamic Callback.** The TCP/IP stack ignores the incoming call and then automatically dials the calling number by issuing an AT#CONNECTIONSTART command. For this feature, the Caller ID service is mandatory. As described below, the calling number must match the one specified in the CALLSCREENNUM parameter.

Default: **0**

Note: If #ANSWERMODE is set to a value other than 0, the user must enable caller ID. To enable caller ID, use the command **AT+CLIP=1**.

#CALLBACKTIMER – Set Automatic Call-Back Wait

Definition: This parameter defines the number of seconds the TCP/IP stack will wait before an automatic call-back operation occurs after receiving an incoming call. It applies only when the ANSWERMODE parameter is set to an automatic call-back mode (value>1). This timer starts at the end of the ringing signal.

Syntax: **Set Value: AT#CALLBACKTIMER=<value>**
Get Value: AT#CALLBACKTIMER? or AT#VPHY, AT#VALL

Values: Integer between 2 and 255 inclusive. This timer is set in seconds.

Default: **2**

#CALLSCREENNUM – Set Caller ID Service

Definition: When receiving an incoming call, the caller identification (Caller ID) service allows the TCP/IP stack to identify the phone number of the remote caller. This information is helpful in preventing unauthorized callers to trigger actions on the TCP/IP stack.

This parameter allows the user to filter the incoming calls when the ANSWERMODE parameter is set to an automatic mode (value>0). This filtering doesn't apply when the ANSWERMODE parameter is set to 0. In this case, it is the host's responsibility to accept or reject the incoming call. If an incoming phone number is not authorized, the TCP/IP stack will ignore it.

Syntax: **Set Value: AT#CALLSCREENNUM=<value>**
Get Value: AT#CALLSCREENNUM? or **AT#VPHY, AT#VALL**

Values:

0 Zero. Remote caller not authorized.

***** All. No filtering is applied on incoming calls. All remote phone numbers are authorized. This value must be set to receive incoming calls when Caller ID service is not available.

Not valid for Analog Devices.

Decimal Phone Number. Only the phone number configured here is authorized for incoming calls. Alphanumeric ASCII text string up to 64 characters.

Default: **0**

#KEEPALIVEMODE – Keep-Alive Mode

Definition: If the keep-alive mode is not equal to zero, then the keep-alive function will trigger. The function allows a persistent physical connection to be established. If enabled and a remote host is not reached, the physical connection is disconnected (if connected) and reestablished.

Syntax: **Set Value: AT#KEEPALIVEMODE=<Keepalivemode value>**
View Values: AT#KEEPALIVEMODE? or **AT#VKEEPALIVE** or **AT#VALL**

Values:
0 Keep-Alive mode is disabled
1 Keep-Alive mode is enabled using a TCP connection
2 Keep-Alive mode is enabled using ICMP

Default: **0**

Example: AT#KEEPALIVEMODE=1

#KEEPALIVEPORT – Keep-Alive Port Number

Definition: If the keep-alive session is TCP, then keep alive port controls the remote host port number.

Syntax: **Set Value: AT#KEEPALIVEPORT=<Port Number value>**
View Values: AT#KEEPALIVEPORT? or **AT#VKEEPALIVE** or **AT#VALL**

Values: Set the port number that the Profile will use:
From 1 to 5 numeric digits (0 to 9).
Note:
Numbers above 65535 are illegal since port identification fields are 16-bits long in the IDP header.

Default: **0**

Example: AT#KEEPALIVEPORT=xxxxx

#KEEPALIVESERV – Keep-Alive Server Address

Definition: The remote address for both TCP and ICMP keep-alive.

Syntax: **Set Value: AT#UDPSERV="<Keepalive Server Addressvalue>"**
View Value: AT#KEEPALIVESERV? or **AT#VKEEPALIVE** or **AT#VALL**

Values: Set the Remote Server Address value that the Profile will use:
32-bit number is dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is working.

Default: None

Example: AT#KEEPALIVESERV="xxx.xxx.xxx.xxx" or AT#KEEPALIVESERV="some.address.com"

#KEEPALIVEDELAY – Keep-Alive Delay

Definition: This parameter determines the delay before the keep-alive mechanism will check the remote host for connectivity.

Syntax: **Set Value: AT#KEEPALIVEDELAY=<Data Delay value>**
View Value: AT#KEEPALIVEDELAY? or **AT#VKEEPALIVE** or **AT#VALL**

Values: Set the delay value in minutes
Integer between 0 and 65535

Default: **100**

Example: AT#KEEPALIVEDELAY=xxxxx

#ATCMD – Set Default Dial Time AT Commands

Definition: This command allows the user to customize AT commands on dial up.

Syntax: **Set Value:** AT#ATCMD=id,"Valid AT command"
View Value: AT#ATCMD=id or AT#VALL

id: Enter a Profile Setting: 0, 1, 2, 3 {0,1,2,3}

Values: Set the valid AT command (Do not include AT or issue &F, as the command will error)

Defaults:

For Analog Devices:
0, "-STE=1"
1, "+MS=V34"
2, ".."
3, ".."

For All Other Devices:
0, ".."
1, ".."
2, ".."
3, ".."

#REDIALCOUNT – Set Connection Attempts Allowed

Definition: This parameter indicates how many unsuccessful connection attempts the TCP/IP stack software will make before terminating the connection attempt activity.

Syntax: **Set Value:** **AT#REDIALCOUNT=<value>**
Get Value: **AT#REDIALCOUNT?** or **AT#VPHY**, **AT#VALL**

Values: Integer between 0 and 14, inclusive.
If the value is set to 0, the TCP/IP stack software will not make any call retry.

Default: **5**

#REDIALDELAY – Set Call Retry Delay

Definition: This parameter controls the delay (in seconds), if any, that will exist between each call retry.

Syntax: **Set Value:** **AT#REDIALDELAY=<value>**
Get Value: **AT#REDIALDELAY?** or **AT#VPHY**, **AT#VALL**

Values: Integers 0 and 5–14 inclusive.
If this parameter is configured to zero, the TCP/IP stack software will attempt another connection immediately after terminating the previous unsuccessful attempt.

Default: **5**

#PHYTIMEOUT – Set Inactivity Time

Definition: This parameter is used by the TCP/IP stack software in order to terminate connections to the telephone line when a long period elapses without activity. "Without activity" is defined as a period when no data is transferred between the Internet and the TCP/IP stack software or between the TCP/IP stack software and the attached equipment. This timer prevents the telephone line from being connected indefinitely for any reason.

Note: When the inactivity timer expires, the modem ends the communication.

Syntax: **Set Value: AT#PHYTIMEOUT=<value>**

Get Value: AT#PHYTIMEOUT? or **AT#VPHY**, **AT#VALL**

Values: Integer between 1 and 255 inclusive. This timer is set in minutes.

Default: **15**

Return Codes: TIMEOUT: The inactivity timer is reached; the modem ends the communication.

#RINGCOUNT – Set Number of Rings/Automatic Operation

Definition: This parameter defines the number of rings that will be counted before an automatic operation occurs when receiving an incoming call.

It applies only when the ANSWERMODE parameter is set to an automatic mode (value>0).

If the ANSWERMODE parameter is used, the RINGCOUNT value must also be >0.

Syntax: **Set Value: AT#RINGCOUNT=<value>**

Get Value: AT#RINGCOUNT? or **AT#VPHY**, **AT#VALL**

Values: Integer between 0 and 15 inclusive.

0 = modem will not answer.

1-15 = modem will answer on the ring number selected.

Default: **0**

#DIALN1 – Set Primary Dial-Up Number

Definition: This parameter is the primary dial-up phone number that will connect with the local ISP. Length depends on country/region.

Syntax: **Set Value:** AT#DIALN1="<value>"
Get Value: AT#DIALN1? or AT#VPHY, AT#VALL

Values: Decimal phone numbers.

Default: None

#DIALN2 – Set Secondary Dial-Up Number

Definition: This parameter is the secondary dial-up phone number that will connect with the local ISP. Length depends on country.

Syntax: **Set Value: AT#DIALN2="<value>"**
Get Value: AT#DIALN2? or **AT#VPHY**, **AT#VALL**

Values: Decimal phone numbers.

Default: None

#DIALSELECT – Set Internet Connection Number

Definition: The value of this command determines the number called to establish an Internet connection. It configures the TCP/IP stack software to use the primary dial-up number or the secondary dial-up number.

Syntax: **Set Value: AT#DIALSELECT=<value>**
Get Value: AT#DIALSELECT? or **AT#VPHY**, **AT#VALL**

Values: **1** Use primary dial-up number.
2 Use secondary dial-up number

Default: **1**

#ISPPW – Set ISP Password

Definition: This parameter sets the password for the ISP account. When communication is initiated and once the physical (modem) connection has been established with the ISP, the TCP/IP stack software must provide the ISP with the password associated with the account to be used.

Syntax: **Set Value: AT#ISPPW="<value>"**
Get Value: AT#ISPPW? or **AT#VPPP**, **AT#VALL**

Values: Alpha-numeric ASCII text string up to 64 characters.

Default: None

#ISPUN – Set ISP User Name

Definition: This parameter sets the user name of the ISP account. When communication is initiated and the physical (modem) connection has been established with the ISP, the TCP/IP stack software must provide the ISP with the user name associated with the account to be used.

Syntax: **Set Value: AT#ISPUN="<value>"**
Get Value: AT#ISPUN? or **AT#VPPP**, **AT#VALL**

Values: Alpha-numeric ASCII text string up to 64 characters.

Default: None

Incoming Call Management Commands

#ACCEPT – Answer Incoming Call

Definition: This command directs the TCP/IP stack to answer an incoming call. When the TCP/IP stack receives an incoming call, it sends over the serial port the "RING" messages. Depending on the value of the ANSWERMODE parameter, the TCP/IP stack may answer automatically or not.

If ANSWERMODE is set to 0, it is the host that is responsible for answering the incoming call.

Once the physical layer is up, the TCP/IP stack runs.

The AT#CONNECTIONSTOP command ends the connection by going on hook.

Values: **Read parameters:**

ANSWERMODE
IPSPW
ISPUN
PPPMYIP

Syntax: **AT#ACCEPT**

Command	Possible Responses
AT#ACCEPT Note: Manual acceptance of an incoming call	OK Note: Beginning of the call setting process CONNECT <speed> Note: Modem speed negotiated between both sides xxx.xxx.xxx.xxx Note: IP address indication attributed to the TCP/IP stack PPP OK Note: The software is ready to run IP applications to send/receive data
AT#ACCEPT Note: Manual acceptance of an incoming call	NO CARRIER Note: The modem handshaking process with the remote host is interrupted or unsuccessful
AT#ACCEPT Note: Manual acceptance of an incoming call	PPP ERROR Note: The PPP negotiation has failed (check ISPUN, ISPPW, PPPMODE, and the configuration of the PPP peer)

#CONNECTIONSTOP – Stop Communication

Definition: This command directs the TCP/IP stack to end a communication previously established with a CONNECTIONSTART command or AT#ACCEPT.

Values: No TCP/IP parameter is used for the execution of this command.

Syntax: **AT#CONNECTIONSTOP**

Command	Possible Responses
AT#CONNECTIONSTOP Note: Disconnect	OK

#CONNECTIONSTART – Start Communication

Definition: This command directs the TCP/IP stack to originate an outgoing call.

Upon receiving this command, the TCP/IP stack attempts to complete a connection session.

The TCP/IP stack will dial the number according to the #GPRSMODE value and Dial Option parameter (DIALN1 or DIALN2 depending on DIALSELECT). If an error occurs, the TCP/IP stack automatically re-attempts the call origination attempt, according to the REDIALCOUNT parameter. Once the physical layer is up, the TCP/IP stack runs.

Values: **Read Parameters:**

DIALN1
DIALN2
DIALSELECT
ISPPW
ISPUN
REDIALCOUNT
REDIALDELAY

Syntax: **AT#CONNECTIONSTART**

Command	Possible Responses
AT#CONNECTIONSTART Notes: Request connection to network. This is for GPRSMODE=0.	DIALING Note: Phone line is available 2124560123 Note: Dial DIALN1 or DIALN2 number depending on DIALSELECT CONNECT 9600 Note: Modem speed negotiated between both sides. If the TCP/IP stack is configured for modem only operation (PPPMODE parameter), there are no more return codes 213.192.200.4 Note: IP address attributed to the TCP/IP stack Ok_Info_PPP Note: As soon as the TCP/IP stack software displays this message, it is ready to receive commands
AT#CONNECTIONSTART Notes: Request connection to network. This is for GPRSMODE=1 or GPRSMODE=2	Ok_Info_GprsActivation Note: As soon as the TCP/IP stack software displays this message, it is ready to receive commands 213.192.200.4 Note: IP address attributed to the TCP/IP stack
AT#CONNECTIONSTART	BUSY Note: A busy signal is detected on the remote site TCP/IP stack will wait REDIALDELAY seconds then dial again. The redialing will continue until success or until the number of call retries defined in parameter REDIALCOUNT has been reached.
AT#CONNECTIONSTART	NO CARRIER Note: A physical connection could not be completed. The TCP/IP stack will wait REDIALDELAY seconds then dial again. The redialing will continue until success or until the number of call retries defined in parameter REDIALCOUNT has been reached.

#AUTOCONNECT – Automatically Connect the PPP Link

Definition: **#AUTOCONNECT** enables/disables the automatic link connection. The APN or ISP values need to be set correctly.

Values:
0 **AUTOCONNECT** disabled
1 **AUTOCONNECT** enabled

Syntax:
Set Value: AT#AUTOCONNECT=<value>
Get Value: AT#AUTOCONNECT? or **AT#VALL**

Default: **0**

#PPPMODE – Set TCP/IP Behavior

Definition: The TCP/IP stack can manage the access layer in different ways. This parameter selects the way the TCP/IP stack must run once the physical is layer successfully established.

Syntax:
Set Value: AT#PPPMODE=<value>
Get Value: AT#PPPMODE? or **AT#VPPP**, **AT#VALL**

Values:
3 **Standard PPP.** The TCP/IP stack behaves as a PPP client for outgoing calls and as a PPP client for incoming calls.

Default: **3**

#PPPMYIP – Set IP Address When Using PPP

Definition: When the TCP/IP stack behaves as a PPP server (according to the PPPMODE parameter setting), it is in charge of the IP address attribution mechanism.

Once the PPP authentication is successfully achieved, the remote PPP peer asks the TCP/IP stack for an IP address. Then the related PPP layer, called IPCP, suggests an IP address to the peer that has been previously stored in the TCP/IP stack parameters. If the remote accepts this address, the IP link is then established.

This parameter defines the IP address to be attributed to the TCP/IP stack when the PPP Server mode is running.

Syntax:
Set Value: AT#PPPMYIP=<value>
Get Value: AT#PPPMYIP? or **AT#VPPP**, **AT#VALL**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx).

Default: **0.0.0.0**

#PPPPEERIP – Set IP Address for Remote PPP

Definition: When the TCP/IP stack behaves as a PPP server (according to the PPPMODE parameter setting), it is in charge of the IP address attribution mechanism.

Once the PPP authentication is successfully achieved, the remote PPP peer asks the TCP/IP stack for an IP address. Then the related PPP layer, called IPCP, suggests an IP address to the peer that has been previously stored in the TCP/IP stack parameters. If the remote accepts this address, the IP link is then established.

This parameter defines the IP address to be attributed to the remote PPP peer when the PPP Server mode is running.

Syntax:
Set Value: AT#PPPPEERIP=<value>
Get Value: AT#PPPPEERIP? or **AT#VPPP**, **AT#VALL**

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx).

Default: **0.0.0.0**

#PPPSERVUN – Set User Name for Remote PPP Client

Definition: When the TCP/IP stack behaves as a PPP server (according to the PPPMODE parameter), it checks the remote PPP client login/password before granting access to the server.

This parameter defines the user name that must be specified by the remote PPP client.

Syntax: **Set Value: AT#PPPSERVUN=<value>**
Get Value: AT#PPPSERVUN? or **AT#VPPP**, **AT#VALL**

Values: Alpha-numeric ASCII text string up to 64 characters. No default.

#PPPSERVPW – Set Remote PPP Client Password

Definition: When the TCP/IP stack behaves as a PPP server (according to the PPPMODE parameter setting), it checks the remote PPP client login/password before granting access to the server.

This parameter defines the password that must be specified by the remote PPP client.

Syntax: **Set Value: AT#PPPSERVPW=<value>**
Get Value: AT#PPPSERVPW? or **AT#VPPP**, **AT#VALL**

Values: Alpha-numeric ASCII text string up to 64 characters. No default.

#APNPW – Set Access Point Name Password

Definition: #APNPW is the Access Point Name password parameter coming with the APNUN from the GSM operator and provides GPRS access.

Syntax: **Set Value: AT#APNPW=<value>**
Get Value: AT#APNPW? or **AT#VGPRS**, **AT#VALL**

Values: Alphanumeric ASCII text string up to 120 characters. No default.

#APNSERV – Set Access Point Name

Definition: #APNSERV is the Access Point Name parameter coming from the GSM operator for providing GPRS access.

Syntax: **Set Value: AT#APNSERV=<value>**
Get Value: AT#APNSERV? or **AT#VGPRS**, **AT#VALL**

Values: Alphanumeric ASCII text string up to 120 characters. No default.

#APNUN – Set Access Point User Name

Definition: #APNUN is the Access Point Name User Name parameter coming with the APNPW from the GSM operator for providing GPRS access.

Syntax: **Set Value: AT#APNUN=<value>**
Get Value: AT#APNUN? or **AT#VGPRS**, **AT#VALL**

Values: Alphanumeric ASCII text string up to 120 characters. No default.

#GPRSCID – Set PDP Context Identifier

Definition: #GPRSCID is the PDP context identifier which specifies a particular PDP context definition. This parameter is local and may be used in other PDP context-related commands.

Syntax: **Set Value: AT#GPRSCID=<value>**
Get Value: AT#GPRSCID? or **AT#VGPRS**, **AT#VALL**

Values: Numeric between 1 and 4 inclusive.

Default: **1**

#GPRSMODE – Activate Switching Between GSM and GPRS

Definition: #GPRSMODE configures the activation of the software for switching between GSM and GPRS.

Syntax: **Set Value: AT#GPRSMODE=<value>**
Get Value: AT#GPRSMODE? or **AT#VGPRS**, **AT#VALL**

Values: **0** Configured for GSM use.
1 Configured for GPRS use.

Default: **1**

Display Commands

#DISPLAYIP – Display IP Addresses

Definition: This command allows the attached host to view the attributed IP addresses that have been attributed during the IPCP phase of the PPP negotiation. Both local and remote PPP peer IP addresses are displayed. This command should be issued only once the PPP OK message has been received from the TCP/IP stack.

Syntax: **AT#DISPLAYIP**

Response: MY IP: xxx.xxx.xxx.xxx
PEER IP: **xxx.xxx.xxx.xxx**

Values: **Read Parameters:**
PPPMYIP
PPPPEERIP

#VPPP – Display PPP Parameters

Definition: This command directs the TCP/IP stack to display all the AT# parameters related to the PPP layer configuration.

Values: **Read Parameters:**

ISPPW
ISPUN
PPPMYIP
PPPPEERIP

Syntax: **AT#VPPP**

Command	Possible Responses
AT#VPPP	#ISPUN: “myispun” #ISPPW: “myisppwd: #PPPMODE: 1 #PPPMYIP: “0.0.0.0” #PPPPEERIP: “0.0.0.0” OK

#VPHY – Display Physical Parameters

Definition: This command directs the TCP/IP stack to display all the AT# parameters related to the physical layer configuration.

Syntax: **AT#VPHY**

Command	Possible Responses
AT#VPHY	#ANSWERMODE: 0 #CALLBACKTIMER: 2 #CALLSCREENNUM: “0” #DIALN1: “” #DIALN2: “” #DIALSELECT: 1 #PHYTIMEOUT: 15 #REDIALCOUNT: 5 #REDIALDELAY: 5 #RINGCOUNT: 0 OK

Values:

ANSWERMODE
CALLBACKTIMER
CALLSCREENNUM
DIALN1
DIALN2
DIALSELECT
PHYTIMEOUT
REDIALCOUNT
REDIALDELAY
RINGCOUNT

Part 5 – GPIO Commands

Chapter 15 – GPIO Commands

Chapter 15 – GPIO Commands

Note: GPIO Commands apply to iCell modems only.

About GPIO

If the specific hardware allows GPIO (check availability with AT#GPIO=1), then you may specify certain external events from the GPIOs to trigger specific stack functions; i.e., email, upload files, download files. **In order for this to work, you must configure the specific function first.** (Original sentence was: The requirements are the configuration of the specific function. For instance, if SENDMAIL1 will be called, then all settings pertaining to SENDMAIL1 must be configured before the #GPIO command is configured.

#GPIO – Enable/Disable and Configure External GPIO Driven Events

Definition: If GPIO is enabled and configured correctly, a specific external trigger (Digital HI/LOW or Analog value from 0-3.3V) will trigger a specified function from the stack.

Syntax:
Set Value: AT#GPIO=ID, Pin Function, Trigger Level, Debounce, Stack Function, Hangup
View Values: AT#GPIO=<n> where n is the Pin number or AT#VALL

ID: Pin number as described in the hardware documentation
Values: 1 - 5

Pin Function: Allows the pin to be a Digital Input, Digital Output or ADC input
Values:
0 - Digital Input with internal pullup
1 - Digital Input without internal pullup
2 - Digital Output
3 - ADC input

Trigger Level: The Voltage level at which GPIO will trigger.
For Digital input, a value greater than 0 indicates high. 0 indicates low.
For Digital output, a positive value will drive the line high. A zero value will drive the line low.
For ADC input, the trigger value will be in the range of 0 to 3300 millivolts.
Values: 0 - 3300 in milliVolts

Debounce: The time between successive reads on the pin.
Values: 0 - 65535 milliseconds

Stack Function: The desired stack function to be **specified** on a GPIO trigger. The stack function must be properly configured; i.e., for a sendmail function, all proper sendmail items must be configured.
Values:
0 - Disabled (The GPIO will not trigger)
1 - #SENDMAIL1
2 - #SENDMAIL2
3 - #SENDMAIL3
4 - #PUTMAIL
5 - #GETMAIL
6 - #LTCPSTART=1
7 - #OTCP=1
8 - #OUDP=1
9 - #LUDPSTART=1

Hangup: Determines whether to disconnect from the network after GPIOs have been processed.
Values:
0 - Physical connection will disconnect when all GPIOs have been processed
1 - Physical connection will stay connected.
2 - Physical connection will disconnect when all GPIOs have been processed; suppress responses
3 - Physical connection will stay connected; suppress responses

Default: 1,1,0,0,0,0
2,1,0,0,0,0
3,0,0,0,0,0
4,0,0,0,0,0
5,3,0,0,0,0

Example: AT#GPIO=1,0,1,180,1,0

PIN 1 would be configured as a Digital Input with internal pullup (0).
A positive voltage will trigger the pin (1).
A Debounce of time of 180 ms (180) will be used.
#SENDMAIL1 will be called if the GPIO triggers (1).
After processing the GPIO, the physical connection will be disconnected (0) and all responses will be printed to the user.

Part 6 – Commands for GPS-Enabled Device

Chapter 16 – Commands for GPS-Enabled Device

Chapter 16 – Commands for GPS-Enable Products

#GPSSERV – Set GPS Host Server Address

Definition: This command sets the server IP address or name to which the GPS data will be sent.

Syntax: **Set Value:** AT#GPSSERV="<value>"
View Value: AT#GPSSERV? or AT#VGPS or AT#VALL

Values: 32-bit number in dotted-decimal notation (i.e., xxx.xxx.xxx.xxx) or
Alphanumeric ASCII text string up to 120 characters if DNS is available. No default.

Responses: OK
Otherwise ERROR

#GPSPORT – Set GPS Host Port

Definition: This command sets the GPS host port (TCP, UDP).

Syntax: **Set Value:** AT#GPSPORT=<port number>
View Value: AT#GPSPORT? or AT#VGPS or AT#VALL

Values: 1 to 65535

Default: 0

Responses: OK
Otherwise ERROR

#GPSPROTO – Set GPS Host Protocol

Definition: This command sets the server protocol that the GPS will use (TCP, UDP).

Syntax: **Set Value:** AT#GPSPROTO=<value>
View Value: AT#GPSPROTO? or AT#VGPS or AT#VALL

Values: **0** UDP
1 TCP

Default: 0

Responses: OK
Otherwise ERROR

#GPSPREFIX – Set GPS Message Prefix

Definition: This command is used to set a unique identification for each device or vehicle.

Syntax: **Set Value:** AT#GPSPREFIX="<value>"
View Value: AT#GPSPREFIX? or AT#VGPS or AT#VALL

Values: Up to 4 characters in an alphanumeric string
Note: The prefix is appended to the NMEA message before transit

Default: " "

Responses: OK
Otherwise ERROR

#GPSURAIS – Set GPS Unique Remote Asset Identification String

Definition: This command is used to set a unique remote access identification string for each device or vehicle.

Syntax: **Set Value:** AT#GPSURAIS="<value>"
View Value: AT#GPSURAIS? or AT#VGPS or AT#VALL

Values: Up to 20 characters in an alphanumeric string
Note: The ID precedes the GPSPREFIX.

Default: " "

Responses: OK
Otherwise ERROR

#GPSINTERVAL – Set GPS Server Transmission Interval

Definition: This command sets the interval of time between messages transmitted to the server.

Syntax: **Set Value:** AT#GPSINTERVAL=<value>
View Value: AT#GPSINTERVAL? or AT#VGPS or AT#VALL

Values: 0 to 65535 (seconds)

Default: 0 (Disabled)

Responses: OK
Otherwise ERROR

#GPSPW – Set GPS Host Login Password

Definition: This command sets the GPS host login password, if required. Some GPS hosts may require a simple password login mechanism.

Syntax: **Set Value:** AT#GPSPW="<value>"
View Value: AT#GPSPW? or AT#VGPS or AT#VALL

Values: Alphanumeric ASCII text string up to 64 characters.

Default: None

Responses: OK
Otherwise ERROR

#GPSGPGGA – Enable/Disable GPGGA Message

Definition: This command enables or disables the reporting of NMEA GPGGA messages.

Syntax: **Set Value:** AT#GPSGPGGA =<value>
View Value: AT#GPSGPGGA? or AT#VGPS or AT#VALL

Values: **0** Disable
1 Enable

Default: **1**

Responses: OK
Otherwise ERROR

#GPSGPGLL – Enable/Disable GPGLL Message

Definition: This command enables or disables the reporting of NMEA GPGGA messages.

Syntax:
Set Value: AT#GPSGPGLL =<value>
View Value: AT#GPSGPGLL? or AT#VGPS or AT#VALL

Values:
0 Disable
1 Enable

Default: **0**

Responses:
OK
Otherwise ERROR

#GPSGPGSA – Enable/Disable GPGSA Message

Definition: This command enables or disables the reporting of NMEA GPGSA messages.

Syntax:
Set Value: AT#GPSGPGSA =<value>
View Value: AT#GPSGPGSA? or AT#VGPS or AT#VALL

Values:
0 Disable
1 Enable

Default: **0**

Responses:
OK
Otherwise ERROR

#GPSGPGSV – Enable/Disable GPGSV Message

Definition: This command enables or disables the reporting of NMEA GPGSV messages.

Syntax:
Set Value: AT#GPSGPGSV =<value>
View Value: AT#GPSGPGSV? or AT#VGPS or AT#VALL

Values:
0 Disable
1 Enable

Default: **0**

Responses:
OK
Otherwise ERROR

#GPSGPRMC – Enable/Disable GPRMC Message

Definition: This command enables or disables the reporting of NMEA GPRMC messages.

Syntax:
Set Value: AT#GPSGPRMC =<value>
View Value: AT#GPSGPRMC? or AT#VGPS or AT#VALL

Values:
0 Disable
1 Enable

Default: **0**

Responses:
OK
Otherwise ERROR

#GPSGPVTG – Enable/Disable GPVTG Message

Definition: This command enables or disables the reporting of NMEA GPVTG messages.

Syntax:
Set Value: AT#GPSGPVTG=<value>
View Value: AT#GPSGPVTG? or AT#VGPS or AT#VALL

Values:
0 Disable
1 Enable

Default: **0**

Responses:
OK
Otherwise ERROR

#GPSINTERVALLOC – GPS Local Transmission Interval

Definition: This command sets the interval of time between messages transmitted to the local port.

Syntax:
Set Value: AT# GPSINTERVALLOC =<value>
View Value: AT# GPSINTERVALLOC? or AT#VGPS or AT#VALL

Values: 0 to 65535 (seconds)

Default: **0** (Disabled)

Responses:
OK
Otherwise ERROR

#GPSGETMESSAGE – Get Queued GPS Message

Definition: This command gets the current queued GPS message. The response depends on which messages have been enabled.

Syntax: AT#GPSGETMESSAGE

Responses:
#GPSGETMESSAGE:
<enabled NMEA messages with prefix and urais>
OK

GPS Message Syntax

GPS message syntax that is sent from the UIP device to the backend server:

<GPSPREFIX><GPSURAIS><NMEA_MESSAGE><CR><LF>

Where

<GPSPREFIX> is the unique prefix. Length is 0 to 4 characters (Character format or requirements usually provided by backend service)

<GPSURAIS> is the unique remote asset identification string. Length is 0 to 20 characters (This string may be provided by the backend service)

<NMEA_MESSAGE> is a standard NMEA sentence received from the internal GPS receiver

<CR><LF> is a Carriage Return and a Line feed

The message that will be transmitted can be viewed with the #GPSGETMESSAGE command. The difference from the viewed message and the transmitted message will be the NMEA message parameters due to timestamp changes and or location changes.

The <GPSPREFIX><GPSURAIS><NMEA_MESSAGE><CR><LF> is a popular format used by numerous services. Along with the format, the following rules are followed:

Typical transmission protocol is UDP (format provided by backend service) due to low overhead, however TCP is available

Multiple GPS message can and will be transmitted granted the specific message type is enabled (GPSGPVTG, GPSGPRMC, etc)

Typical minimum message type needed by the backend services is usually the GPRMC or GPGGA and GPVTG messages (Requirement provided by the backend server)

Do not use the $ character in either the <GPSPREFIX> or <GPSURAIS> sections

Typical transmission intervals to the backend service are 5sec and greater (Requirement provided by backend server)

GPS Message Examples

The following examples use a <GPSPREFIX> configured to && and a <GPSURAIS> configured with ID1111

&&ID1111$GPGSA,A,3,07,09,11,20,28,31,,,,,,,3.0,2.2,2.1*36<CR><LF>

&&ID1111$GPGSV,3,1,09,04,40,193,41,07,79,354,50,08,02,171,00,09,28,305,31*78<CR><LF>

&&ID1111$GPGSV,3,2,09,11,15,048,45,20,21,078,37,24,08,205,27,28,55,122,46*77<CR><LF>

&&ID1111$GPGSV,3,3,09,31,67,052,43*43<CR><LF>

&&ID1111$GPGGA,223750.00,4502.2467,N,09302.4844,W,1,05,5.4,287.0,M,-27.6,M,,*58<CR><LF>

&&ID1111$GPRMC,223750.00,A,4502.2467,N,09302.4844,W,57.00,97.29,131104,2.5,E,A*20<CR><LF>

GPS Configuration Examples

AT#GPSPREFIX="&&"<CR>	Prefix (Requirements provided by backend service)
AT#GPSURAIS="ID1111"<CR>	Unique ID (Requirements provided by backend service)
AT#GPSGPRMC=1<CR>	Enable GPRMC message (Requirements provided by backend service)
AT#GPSGPGGA=0<CR>	Disable GPGGA message (Requirements provided by backend service)
AT#GPSGPGLL=0<CR>	Disable GPGLL message (Requirements provided by backend service)
AT#GPSGPGSA=0<CR>	Disable GPGSA message (Requirements provided by backend service)
AT#GPSGPGSV=0<CR>	Disable GPGSV message (Requirements provided by backend service)
AT#GPSGPVTG=0<CR>	Disable GPGLL message (Requirements provided by backend service)
AT#VGPS<CR>	View settings

The following command starts the GPS sending. The message will be sent if the UIP device is connected to the network. (CONNECTIONSTART has been issued)

AT#GPSINTERVAL=5<CR>	Timer in seconds that the device will contact the remote server
AT#GPSINTERVAL=0<CR>	Disables sending messages

The following example message would be sent over the network using UDP every 5 seconds (The $GPRMC would have different data however)

&&ID1111$GPRMC,223750.00,A,4502.2467,N,09302.4844,W,57.00,97.29,131104,2.5,E,A*20<CR><LF>

Application Note – GPS NMEA Messages

Introduction

The *NMEA (National Marine Electronics Association) 0183 Standard* is a standard protocol for interfacing navigational devices; e.g., GPS and DGPS receivers over a serial interface. The complete document of this standard may be obtained from NMEA at http://www.nmea.org. We wish to thank SkyTraq Technology, Inc. for providing the following summary of NMEA Messages.

NMEA Protocol Overview

Message Format

The structure of an NMEA message is shown below.

Start of Sequence	Address Field	Data Field(s)	Checksum Field	End of Sequence
$ or !	<Address>	[,<data field>] [,<data field>]	*<checksum>	<CR><LF>

Start of Sequence

All sentences begin with the sentence start delimiter character “$” or “!”.

Address Field

The address field is used to define the sentence. Characters with digits and upper case letters are permitted to be in the address field. Note that the address field is required. It cannot be a null field. This field is subdivided into 2 fields.

<XX>	<XXX>
Talker Identifier	Sentence Formatter

Talker Identifier is always **GP** for a GPS receiver. The sentence formatter defines the format and the type of data.

Data Field(s)

Data fields are delimited by a “,” and contain valid characters specified in NMEA 0183 standard. It can consist of fields of variable lengths.

Checksum

The checksum field is the 8-bit exclusive OR (no start or stop bits) of all characters in the sentence. Checksum consists of 2 characters and is represented as a hex number.

End of Sequence

All sentences always end with sentence termination delimiter character “$” or “!”.

SUPPORTED MESSAGE LIST

The following NMEA messages are supported.

Sentence	Descriptions
GGA	Global Positioning System Fix Data
GLL	Geographic Position – Latitude/Longitude
GSA	GNSS DOP and Active Satellites
GSV	GNS Satellites in View
RMC	Recommended Minimum Specific GNSS Data
VTG	Course Over Ground and Ground Speed

NMEA MESSAGES

The full descriptions of supported NMEA messages are provided at the following paragraphs.

GGA – Global Positioning System Fix Data

Time, position and fix related data for a GPS receiver.

Structure:

$GPGGA,hhmmss.sss,ddmm.mmmm,a,dddmm.mmmm,a,x,xx,x.x,x.x,M,,,,xxxx*hh<CR><LF>

1 2 3 4 5 6 7 8 9 10 11

Example:

$GPGGA,111636.932,2447.0949,N,12100.5223,E,1,11,0.8,118.2,M,,,,0000*02<CR><LF>

Field	Name	Example	Description
1	UTC Time	1 111636.932	UTC of position in hhmmss.sss format, (000000.000 ~ 235959.999)
2	Latitude	2447.0949	Latitude in ddmm.mmmm format Leading zeros transmitted
3	N/S Indicator	N	Latitude hemisphere indicator, ‘N’ = North, ‘S’ = South
4	Longitude	12100.5223	Longitude in dddmm.mmmm format Leading zeros transmitted
5	E/W Indicator	E	Longitude hemisphere indicator, 'E' = East, 'W' = West
6	GPS quality indicator	1	GPS quality indicator 0: position fix unavailable 1: valid position fix, SPS mode 2: valid position fix, differential GPS mode 3: GPS PPS Mode, fix valid 4: Real Time Kinematic. System used in RTK mode with fixed integers 5: Float RTK. Satellite system used in RTK mode. Floating integers 6: Estimated (dead reckoning) Mode 7: Manual Input Mode 8: Simulator Mode
7	Satellites Used	11	Number of satellites in use, (00 ~ 12)
8	HDOP	0.8	Horizontal dilution of precision, (00.0 ~ 99.9)
9	Altitude	108.2	Mean sea level (geoid), (-9999.9 ~ 17999.9)
10	DGPS Station ID	0000	Differential reference station ID, 0000 ~ 1023 NULL when DGPS not used
11	Checksum	02	

GLL – Latitude/Longitude

Latitude and longitude of current position, time, and status.

Structure:

$GPGLL,ddmm.mmmm,a,dddmm.mmmm,a,hhmmss.sss,A,a*hh<CR><LF>
1 2 3 4 5 6 7 8

Example:

$GPGLL,2447.0944,N,12100.5213,E,112609.932,A,A*57<CR><LF>

Field	Name	Example	Description
1	Latitude	2447.0949	Latitude in ddmm.mmmm format Leading zeros transmitted
2	N/S Indicator	N	Latitude hemisphere indicator 'N' = North 'S' = South
3	Longitude	12100.5223	Longitude in dddmm.mmmm format Leading zeros transmitted
4	E/W Indicator	E	Longitude hemisphere indicator 'E' = East 'W' = West
5	UTC Time	112609.932	UTC Time UTC time in hhmmss.sss format (000000.000 ~ 235959.999)
6	Status	A	Status, 'A' = Data valid, 'V' = Data not valid
7	Mode Indicator	A	Mode indicator 'N' = Data not valid 'A' = Autonomous mode 'D' = Differential mode 'E' = Estimated (dead reckoning) mode 'M' = Manual input mode 'S' = Simulator mode
8	Checksum	57	

GSA – GNSS DOP and Active Satellites

GPS receiver operating mode, satellites used in the navigation solution reported by the GGA or GNS sentence and DOP values.

Structure:

$GPGSA,A,x,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,x.x,x.x,x.x*hh<CR><LF>
1 2 3 3 3 3 3 3 3 3 3 3 3 3 4 5 6 7

Example:

$GPGSA,A,3,05,12,21,22,30,09,18,06,14,01,31,,1.2,0.8,0.9*36<CR><LF>

Field	Name	Example	Description
1	Mode	A	Mode 'M' = Manual, forced to operate in 2D or 3D mode 'A' = Automatic, allowed to automatically switch 2D/3D
2	Mode	3	Fix type 1 = Fix not available 2 = 2D 3 = 3D
3	Satellite used 1~12	05,12,21,22, 30,09,18,06, 14,01,31,,	Satellite ID number, 01 to 32, of satellite used in solution, up to 12 transmitted
4	PDOP	1.2	Position dilution of precision (00.0 to 99.9)
5	HDOP	0.8	Horizontal dilution of precision (00.0 to 99.9)
6	VDOP	0.9	Vertical dilution of precision (00.0 to 99.9)
7	Checksum	36	

GSV – GNSS Satellites in View

Number of satellites (SV) in view, satellite ID numbers, elevation, azimuth, and SNR value. Four satellites maximum per transmission.

Structure:

$GPGSV,x,x,xx,xx,xx,xxx,xx,…,xx,xx,xxx,xx *hh<CR><LF>
1 2 3 4 5 6 7 4 5 6 7 8

Example:

$GPGSV,3,1,12,05,54,069,45,12,44,061,44,21,07,184,46,22,78,289,47*72<CR><LF>
$GPGSV,3,2,12,30,65,118,45,09,12,047,37,18,62,157,47,06,08,144,45*7C<CR><LF>
$GPGSV,3,3,12,14,39,330,42,01,06,299,38,31,30,256,44,32,36,320,47*7B<CR><LF>

Field	Name	Ex.	Description
1	No. of messages	3	Total number of GSV messages to be transmitted (1-3)
2	Sequence number	1	Sequence number of current GSV message
3	Satellites in view	12	Total number of satellites in view (00 ~ 12)
4	Satellite ID	05	Satellite ID number, GPS: 01 ~ 32, SBAS: 33 ~ 64 (33 = PRN120)
5	Elevation	54	Satellite elevation in degrees, (00 ~ 90)
6	Azimuth	069	Satellite azimuth angle in degrees, (000 ~ 359)
7	SNR	45	C/No in dB (00 ~ 99) Null when not tracking
8	Checksum	72	

RMC – Recommended Minimum Specific GNSS Data

Time, date, position, course and speed data provided by a GNSS navigation receiver.

Structure:

$GPRMC,hhmmss.sss,A,dddmm.mmmm,a,dddmm.mmmm,a,x.x,x.x,ddmmyy,,,a*hh<CR><LF>
1 2 3 4 5 6 7 8 9 10 11

Example:

$GPRMC,111636.932,A,2447.0949,N,12100.5223,E,000.0,000.0,030407,,,A*61<CR><LF>

Field	Name	Example	Description
1	UTC time	0111636.932	UTC time in hhmmss.sss format (000000.00 ~ 235959.999)
2	Status	A	Status ‘V’ = Navigation receiver warning ‘A’ = Data Valid
3	Latitude	2447.0949	Latitude in dddmm.mmmm format Leading zeros transmitted
4	N/S indicator	N	Latitude hemisphere indicator ‘N’ = North ‘S’ = South
5	Longitude	12100.5223	Longitude in dddmm.mmmm format Leading zeros transmitted
6	E/W Indicator	E	Longitude hemisphere indicator 'E' = East 'W' = West
7	Speed over ground	000.0	Speed over ground in knots (000.0 ~ 999.9)
8	Course over ground	000.0	Course over ground in degrees (000.0 ~ 359.9)
9	UTC Date	030407	UTC date of position fix, ddmmyy format
10	Mode indicator	A	Mode indicator ‘N’ = Data not valid ‘A’ = Autonomous mode ‘D’ = Differential mode ‘E’ = Estimated (dead reckoning) mode ‘M’ = Manual input mode ‘S’ = Simulator mode
11	checksum	61	

VTG – Course Over Ground and Ground Speed

The Actual course and speed relative to the ground.

Structure:

GPVTG,x.x,T,,M,x.x,N,x.x,K,a*hh<CR><LF>
1 2 3 4 5

Example:

$GPVTG, 000.0,T,,M,000.0,N,0000.0,K,A*3D<CR><LF>

Field	Name	Example	Description
1	Course	000.0	True course over ground in degrees (000.0 ~ 359.9)
2	Speed	000.0	Speed over ground in knots (000.0 ~ 999.9)
3	Speed	0000.0	Speed over ground in kilometers per hour (0000.0 ~ 1800.0)
4	Mode	A	Mode indicator ‘N’ = not valid ‘A’ = Autonomous mode ‘D’ = Differential mode ‘E’ = Estimated (dead reckoning) mode ‘M’ = Manual input mode ‘S’ = Simulator mode
5	Checksum	3D	

Part 7 – Appendixes

Appendix A – Response Messages and Error Codes

Appendix B – Response Message Examples

Appendix A – Response Messages & Error Codes

Response Messages

Standard AT Messages		
Numeric	**Verbose**	**Description**
0	OK	Operation or command success
3	NO CARRIER	No physical layer connection
7	BUSY	Destination busy
8	NO ANSWER	No answer from destination
4	ERROR	Operation or command unsuccessful
2	RING	Incoming call indication

Information Messages		
Numeric	**Verbose**	**Description**
1025	Ok_Info_DataBegin	Start of data
1028	Ok_Info_WaitingForData	Send data
3074	Ok_Info_SocketClosed	Socket connection closed successfully
3072	Ok_Info_NoMail	No mail to retrieve on server
3073	Ok_Info_Mail	Mail ready to be retrieved on server
3077	Ok_Info_PPP	PPP connection successful

Error Codes

Error Codes	
Numeric	**Description**
34817	Bad command : Unknown command
34819	Bad command : Syntax error
34824	Bad command : EEPROM write failed
34881	Bad command : Command too long
34882	Bad command : Bad command argument value
34883	Bad command : High level Internet configuration only command
35840	Physical layer : Modem is already running
35862	Physical layer : Timeout, no activity on network connection
35865	Physical layer : Module is not attached to the network
35866	Physical layer : Invalid event during activation process
35867	Physical layer : Physical layer connection is currently not active
35869	Physical layer : Invalid incoming call type
35870	Physical layer : Incoming call CLI not provided
36872	IP Connectivity library internal error : internal resource unavailable.
36929	IP Connectivity library : Bad parameter configuration attempt
37122	IP Connectivity library : Another internal application is already running
37123	IP Connectivity library : Service is running. Unable to set parameter
37124	IP Connectivity library : Data buffer oversized
37125	IP Connectivity library : No UDP datagram received
37952	Distant : TCP session closed (TCP Context cancelled)
37964	Distant : No response from server
37966	Distant : TCP session closed by peer (FIN received from peer)
38016	Distant : Open session attempt failed
38017	Distant : Data send attempt failed
38018	Distant : Close session attempt failed
38023	Distant : File deletion attempt failed
38024	Distant : Data retrieve attempt failed
38025	Distant : Email retrieve attempt failed
38026	Distant : Email header receive failed
38027	Distant : No answer from DNS servers or domain name resolution could not be completed by the server.
38028	Distant : Sender email address rejected by server
38029	Distant : Recipient email address rejected by server
38030	Distant : CC Recipient email address rejected by server
38031	Distant : Email body send request rejected by server
38080	Distant : Username rejected by server
38081	Distant : Password rejected by server

Appendix B – Response Message Examples

Response Messages Examples

Sending/Retrieving Email Response Messages

Sending an Email: AT#PUTMAIL

Commands	Responses
AT#SMTPSERV="smtp.domain.com" *Note: SMTP server used*	OK
AT#DOMAIN="domain.com" *Note: Domain name*	OK
AT#SENDERNAME="Test module" *Note: Sender name*	OK
AT#SENDERADDR="module@domain.com" *Note: Sender email address*	OK
AT#SMTPUN="Name" *Note: SMTP user name*	OK
AT#SMTPPW="Password" *Note: SMTP user password*	OK
AT#SMTPORT="Port" *Note: Port used by SMTP server*	OK
AT#REC1=recipient@domain.com or AT#REC2 or AT#REC3 *Note: Recipient email address*	OK
AT#CCREC1=ccrecipient@domain.com or AT#CCREC2 or AT#CCREC3 *Note: Carbon Copy recipient*	OK
AT#SUBJ1="Email Subject" *Note: Email Subject*	OK
1. AT#PUTMAIL *Note: Send an email (type the email text and then the end sequence)* **OR** 1. AT#BODY1 (or AT#BODY2 or AT#BODY3) *Note: Write an email for a predefined message.* AND 2. AT#SENDMAIL1 (or AT#SENDMAIL2, AT#SENDMAIL3) *Note: Send the predefined message.*	Ok_Info_WaitingForData *Note: The software is ready to receive incoming data (not echoed)* *At the end of date, the* [CR][LF] . [CR][LF] sequence ends the email. This sequence can be sent by a keyboard using: ENTER CTRL+ENTER . ENTER CTRL+ ENTER OK OK

Retrieving an Email: AT#GETMAIL

Commands	Responses
AT#POP3SERV="pop3.domain.com" Note: POP3 server used	OK
AT#POP3UN="module@domain.com" Note: POP3 username (not always the complete email address). It is the POP3 login	OK
AT#POP3PW="password" Note: POP3 password	OK
AT#POP3PORT="110" Note: POP3 port	OK
AT#GETMAIL Note: Retrieve an email	Ok_Info_Mail Note: The software switches from command mode to data mode for receiving the email content. Data Data . Note: At the end of data, the [CR][LF] . [CR][LF] sequence notifies the end of the data mode OK Note: The email is successfully retrieved

FTP: Download / Upload Files Response Messages

Upload a file to an FTP Server: AT#FTPPUT

Commands	Responses
AT#FTPSERV="ftp.domain.com" Note: FTP server used	OK
AT#FTPUN="ftplogin" Note: FTP username	OK
AT#FTPPW="ftppassword" Note: FTP password	OK
AT#FTPPUTFILENAME="upload.text" Note: Name of the file that will be written in the FTP server	OK
AT#FTPPUTPATH="." Note: Path in the server where the file will be written	OK
AT#FTPPUT Note: FTP put	Ok_Info_WaitingForData Note: Switch from command to data mode. The host can send the data that will compose the file. (Data not echoed). To notify the end of data, the host has to send [ETX] (CTRL+C on the keyboard). This character is echoed. OK
Note: End of data notified	OK

Download a file from an FTP Server: AT#FTPGET

Commands	Responses
AT#FTPSERV="ftp.domain.com" Note: FTP server used	OK
AT#FTPUN="ftplogin" Note: FTP username	OK
AT#FTPPW="ftppassword" Note: FTP password	OK
AT#FTPGETFILENAME="upload.text" Note: Name of the file stored in the FTP server	OK
AT#FTPGET Note: FTP get	Ok_Info_DataBegin Note: Switch from command to data mode. The data is sent over the serial port. To end of data is notified by [ETX] sent over the serial port. It switches from data to command mode. Character is echoed. OK

TCP Socket Response Messages

Open a TCP socket between machines. One machine acts as a caller (TCP client); the other acts as a listener (TCP server). Both machines have to be connected to the Internet and set to the same TCP port.

Act as a TCP Server: AT#LTCPSTART

Commands	Responses
AT#TCPSERV=1,"255.255.255.255" Note: No filter of the incoming TCP client	OK
AT#TCPPORT=1,"23" Note: TCP port between the TCP client and the TCP server must be the same	OK
AT#LTCPSTART=1 Note: Launch the listening mode; waiting for an incoming TCP connection from a TCP client	OK Ok_Info_WaitingForData Note: Message sent over the serial port in case of successful TCP socket opening (Telnet for example in the IP address)
Data Note: Data flow is bidirectional	Data Note: Data flow is bidirectional
Note: The socket can be closed locally by the attached host sending an [ETX] character (CTRL+C on the keyboard)	OK
	Note: The socket can be closed by the remote Ok_Info_SocketClosed OK

Act as a TCP Client: AT#OTCP

Commands	Responses
AT#TCPSERV=1,"xxx.xxx.xxx.xxx" Note: No filter of the incoming TCP client	OK
AT#TCPPORT=1,"23" Note: TCP port between the TCP client and the TCP server must be the same	OK
AT#OTCP=1 Note: Open as a TCP client, a socket TCP with remote TCP server	Ok_Info_WaitingForData Note: Message notifying the socket opening and the switch in data mode
Data Note: Data flow is bidirectional	Data Note: Data flow is bidirectional
Note: The socket can be closed locally by the attached host sending an [ETX] character (CTRL+C on the keyboard)	OK
	Note: The socket can be closed by the remote Ok_Info_SocketClosed OK

Note: The closing of the socket can be performed either locally or remotely.

Index

#

#ACCEPT – Answer Incoming Call 76
#ANSWERMODE – Set Answering Mode 71
#APNPW – Access Point Name Password 79
#APNSERV – Access Point Name 79
#APNUN – Access Point User Name 79
#ATCMD – Set Default Dial Time AT Commands 73
#AUTHENT – Authentication Type 70
#AUTOCONNECT – Automatically Connect the PPP Link 78
#AUTODISC – Auto Discovery On or Off 50
#AUTODISCHOST – Set Auto Discovery Host Name 50
#AUTODISCPASSWORD – Auto Discovery Password 51
#AUTODISCPORT – Auto Discovery Port 50
#AUTODISCTIMER – Auto Discovery Timer 50
#AUTODISCUSERNAME – Auto Discovery User Name 51
#AUTORESET – Reset Main Processor to Given Time 20
#BODYi – Set Pre-Defined Email Combinations 27
#CALLBACKTIMER – Automatic Call-Back Wait 71
#CALLSCREENNUM – Caller ID 71
#CCRECi – Set Additional Recipient CC 25
#CONNECTIONSTART – Start Communication 77
#CONNECTIONSTOP – Stop Communication 76
#DELFLASH – Erase Flash Memory Parameter Values 20
#DHCP – DHCP On or Off 47, 53
#DIALN1 – Primary Dial-Up Number 74
#DIALN2 – Secondary Dial-Up Number 74
#DIALSELECT – Internet Connection Number 75
#DISPLAYIP – Display IP Addresses 80
#DLEMODE – Set DLE Mode 38
#DNSSERV1 – Set DNS Server IP Address 48, 54
#DNSSERV2 – Set Secondary DNS Server 48, 54
#DOMAIN – Set Domain Name of the Sender 26
#EMACSPD – Set Netmask Address 48
#ETHIFSTATUS – View Network Interface Settings 49
#FTPAPPEND – Append Data to Server 37
#FTPGET – Download Files from FTP Server 36
#FTPGETFILENAME – Set FTP Download File Name 35
#FTPGETPATH – Path to Get Files from FTP Server 36
#FTPMODE – Enter FTP Mode 34
#FTPPORT – Enter FTP Server Port 34
#FTPPUT – Upload Files to FTP Server 36
#FTPPUTFILENAME – Set FTP Upload File Name 35
#FTPPUTPATH – Path to Send Files to the FTP Server 37
#FTPPW – Set FTP Password 35
#FTPSERV – Specify FTP Server Address 35
#FTPTYPE – Specify Data Type 34
#FTPUN – Set FTP User Name 35
#GETMAIL – Retrieve Host Mail 32
#GPIO – Enable/Disable/Configure External GPIO Driven Events 83
#GPRSCID – PDP Context Identifier 80
#GPRSMODE – Switch Between GSM and GPRS 80
#GPSGETMESSAGE – Get Queued GPS Message 89
#GPSGPGGA – Enable/Disable GPGGA Message 87
#GPSGPGLL – Enable/Disable GPGLL Message 88
#GPSGPGSA – Enable/Disable GPGSA Message 88
#GPSGPGSV – Enable/Disable GPGSV Message 88
#GPSGPRMC – Enable/Disable GPRMC Message 88
#GPSGPVTG – Enable/Disable GPVTG Message 89
#GPSINTERVAL – GPS Server Transmission Interval 87
#GPSINTERVALLOC – GPS Local Transmission Interval 89
#GPSPORT – Set GPS Host Port 86
#GPSPREFIX – Set GPS Message Prefix 86
#GPSPROTO – Set GPS Host Protocol 86
#GPSPW – Set GPS Host Login Password 87
#GPSSERV – Set GPS Host Server Address 86
#GPSURAIS – Set GPS Unique Remote Asset Identification String 87
#IPADDR – Set Static IP Address 47, 53
#IPDNSSERV – Configure the DNS Server 54
#IPDNSTABLE – Display DNS Table 56
#IPGATEWAY – Set Gateway Address 47, 53
#IPNETMASK – Set Subnet Mask 48, 54
#IPQUERY – Give a Domain Name 55
#IPRELEASE – Release a DHCP Address Assigned by the Server 55
#IPRENEW – Renew the DHCP Information from the Server 55
#IPRESOLV – To Observe Whether There Is a Connection with DNS or Not 55
#ISPPW – ISP Password 75
#ISPUN – ISP User Name 75
#KEEPALIVEDELAY – Keep-Alive Delay 72
#KEEPALIVEMODE – Keep-Alive Mode 72
#KEEPALIVEPORT – Keep-Alive Port Number 72
#KEEPALIVESERV – Keep-Alive Server Address 72
#LEGACYMODE – Legacy Mode Enable/Disable 20
#LTCPSTART – Open Listening Mode 39
#LTCPSTOP – Close TCP Listening Mode 40
#LUDPSTART – Initiate UDP Session in Listen Mode 42
#LUDPSTOP – Close UDP Listening Mode 43
#OTCP – Open a TCP Connection 40
#OUDP – Initiate UDP Session in Active Mode 43
#OUTPORT – UDP/TCP Local Port Number 73
#PERSISTENTSOCKET – Persistent Socket 21
#PHYTIMEOUT – Inactivity Timer 74
#PING – Start PING Request 44
#PINGDELAY – PING Delay Time 44
#PINGNUM – Number of PING Requests 44
#PINGREMOTE – IP Address of PING Request 44
#POP3HEADERMODE – POP3 Header 31
#POP3PORT – Set POP3 Server Port 31
#POP3PW – Set POP3 Password 31
#POP3SERV – Set POP3 Server Address 31
#POP3UN – Set POP3 User Name 32
#PPPMODE – TCP/IP Behavior 78
#PPPMYIP – IP Address When Using PPP 78
#PPPPEERIP – IP Address for Remote PPP 78
#PPPSERVPW – Remote PPP Client Password 79
#PPPSERVUN – User Name for Remote PPP Client 79
#PUTMAIL – Send Mail to Recipient in Interactive Mode 29
#RECiADD – Set Email Address 26
#REDIALCOUNT – Connection Attempts Allowed 73
#REDIALDELAY – Call Retry Delay 73
#RESET – Reset Main Processor or Internal Modem 21
#RINGCOUNT – Set Number of Rings 74

#SENDERADDR – Set Sender Address 25
#SENDERNAME – Set Sender Name 25
#SENDMAILi – Send Mail without Interactive Mode 28
#SMTPAUTH – Authentication ON or OFF 30
#SMTPPORT – Set SMTP Server Port 27
#SMTPPW – Set SMTP Password 27
#SMTPSERV – Set SMTP Server Address 27
#SMTPUN – Set SMTP User Name 28
#SUBJi – Set Email Pre-Defined Subject Text 26
#TCPPORT – Set TCP Port for Remote Peer 38
#TCPSERV – Set Address of Remote TCP Server 39
#TCPTXDELAY – Time Delay 39
#TELNET – Start/Stop Telnet Session 59
#TELNETPASSWORD – Set Telnet Password 60
#TELNETPORT – Set Telnet Port 59
#TELNETUSER – Set Telnet User 59
#UDPPORT – UDP Port Number 42
#UDPSERV – UDP Server Address 42
#UDPTXDELAY – Delay before Sending UDP Datagram 42
#VALL – Display All Parameters 22, 23
#VAUTODISC – Display Auto Discover Commands 51
#VDNS – Display Configuration of DNS Servers 49, 56
#VFTP – Display FTP Parameters 37
#VIP – View Address Settings 49, 56
#VMAILi – Display Email Parameters for Mail ID 30
#VPHY – Display Physical Parameters 81
#VPING – Display PING Parameters 45
#VPOP3 – POP3 Module Parameters 33
#VPPP – Display PPP Parameters 81
#VSMTP – Display SMTP Parameters 30
#VSTATE – Display Current State of Physical Connection 22
#VTCP – Display TCP Parameters 41
#VTELNET – View Telnet Settings 60
#VUDP – Display UDP Module Configuration 43
#VVERSION – Display Software Version 22
#WEP? – View the Values of WEP Keys 67
#WEP128KEY – Keys for WEP128 Security Mode 66
#WEP64KEY – Keys for WEP64 Security Mode 65
#WEPKEYID – Set Default TX Key Index 66
#WLAN? – WLAN Module 68
#WLANACTIVATE – Move Module out of Power Save 65
#WLANASSOCINFO – Display Association Information 68
#WLANCONNECT – Connect with AP 63
#WLANCOUNTRYCODE – Country Code 61
#WLANDATARATE – WLAN Transmission Data Rate 62
#WLANDISCONNECT – Disconnect with AP 63
#WLANDOZE= – Moves Module into/out of Power Save 63
#WLANENABLE – Auto Connect Module with AP 63
#WLANGETRSSI – Received Signal Strength 65
#WLANIBSSCHANNEL – Channel for Ad-Hoc Mode 62
#WLANNETWORKMODE – WLAN Network Mode 61
#WLANPOWERSAVE – Enable Power Save at Boot 66
#WLANPROFILE – Display the WLAN Profile 67
#WLANPROFILE – Load the WLAN Profile 64
#WLANPROFILEn=n – Change the WLAN Profile 64
#WLANROAM – Enable/Disable Roaming 65
#WLANSCAN – SCAN Wireless Networks 64
#WLANSCANMODE – Scanning Mode 62
#WLANSECURITYMODE – Security Mode of WLAN Module 61
#WLANSSID – SSID of WLAN 62
#WLANUSEPROFILE – User Profile 65
#WPA2PSKKEY – Keys for WPA2 PSK Security Mode 66
#WPAPSKKEY – Keys for WAP PSK Security Mode 66

&

&C – RLSD (DCD) Option 18
&D – DTR Option 18
&F – Reset Factory Defaults 18
&S – DSR On or Off 18
&W – Store Factory Defaults to NVM 19

+

+ICF – DTE-DCE Character Framing 19
+IFC – Set Flow Control 20
+IPR – Set Serial Speed 20
+WOPEN – Mode of Operation 70

A

A – Manual Answer of TCP or UDP 57
Access Point Name – #APNSERV 79
Access Point Name Password – #APNPW 79
Access Point User Name – #APNUN 79
Answer Incoming Call – #ACCEPT 76
Append Data to Server – #FTPAPPEND 37
AT – Command Mode 17
Authentication ON or OFF – #SMTPAUTH 30
Authentication Type – #AUTHENT 70
Auto Connect Module with AP – #WLANENABLE 63
Auto Discovery On or Off – #AUTODISC 50
Auto Discovery Port – #AUTODISCPORT 50
Auto Discovery Timer – #AUTODISCTIMER 50
Automatic Answer – S0= 55
Automatic Call-Back Wait – #CALLBACKTIMER 71
Automatically Connect PPP Link – #AUTOCONNECTION 78

C

Call Retry Delay – #REDIALDELAY 73
Caller ID – #CALLSCREENNUM 71
Change the WLAN Profile – #WLANPROFILEn=n 64
Channel for Ad-Hoc Mode – #WLANIBSSCHANNEL 62
Close TCP Listening Mode – #LTCPSTOP 40
Close UDP Listening Mode – #LUDPSTOP 43
Command Mode – AT 17

D

Default Configuration – Z 18
Delay before Sending UDP Datagram – #UDPTXDELAY 42
DHCP On or Off – #DHCP 47, 53
Disconnect with AP – #WLANDISCONNECT 63
Display All Parameters – #VALL 22, 23
Display Association Information – #WLANASSOCINFO 68
Display Auto Discovery Commands – #VAUTODISC 51
Display Configuration of DNS Servers – #VDNS 49, 56
Display Current State of Physical Connection – #VSTATE 22
Display DNS Table – #IPDNSTABLE 56
Display Email Parameters for Mail ID – #VMAILi 30
Display FTP Parameters – #VFTP 37
Display IP Addresses – #DISPLAYIP 80
Display Physical Parameters – #VPHY 81
Display PING Parameters – #VPING 45
Display PPP Parameters – #VPPP 81
Display SMTP Parameters – #VSMTP 30

Display Software Version – #VVERSION 22
Display TCP Parameters – #VTCP 41
Display the WLAN Profile – #WLANPROFILE 67
Display UDP Module Configuration – #VUDP 43
Download Files from FTP Server – #FTPGET 36
DSR On or Off – &S 18
DTE-DCE Character Framing – +ICF 19
DTR Option – &D 18

E

E – Turn Echo ON/OFF 17
Enable Power Save at Boot – #WLANPOWERSAVE 66
Enable/Disable/ Configure External GPIO Driven Events – #GPIO 83
Enable/Disable Boot Message – #BOOTMSG 58
Enable/Disable GPGGA Message – #GPSGPGGA 87
Enable/Disable GPGLL Message – #GPSGPGLL 88
Enable/Disable GPGSA Message – #GPSGPGSA 88
Enable/Disable GPGSV Message – #GPSGPGSV 88
Enable/Disable GPRMC Message – #GPSGPRMC 88
Enable/Disable GPVTG Message – #GPSGPVTG 89
Enable/Disable Roaming – #WLANROAM 65
Enable/Disable Watchdog – #WATCHDOG 58
Enter FTP Mode – ##FTPMODE 34
Enter FTP Server Port – #FTPPORT 34
Erase Flash Memory Parameter Values – #DELFLASH20
Error Codes 99
Escape Sequence – S2 57

G

Get Queued GPS Message – #GPSGETMESSAGE 89
GGS – Global Positioning System Fix Data 93
Give a Domain Name – #IPQUERY 55
GLL – Latitude/Longitude 94
GPS Configuration Examples 91
GPS Local Transmission Interval – #GPSINTERVALLOC 89
GPS Message Examples 90
GPS Message Syntax 90
GPS NMEA Messages 93
GPS NMEA Protocol 92
GSA – GNSS DOP and Active Satellites 94
GSV – GNSS Satellites in View 95

I

I – Identification 17
id parameter 38
Identification – I 17
Inactivity Timer – #PHYTIMEOUT 74
Initiate UDP Session in Listen Mode – #LUDPSTART 42
Initiate UDP Session in Active Mode – #OUDP 43
Internet Connection Number – #DIALSELECT 75
IP Address for Remote PPP – #PPPPEERIP 78
IP Address of PING Request – #PINGREMOTE 44
IP Address When Using PPP – #PPPMYIP 78
ISP password – #ISPPW 75
ISP User Name – #ISPUN 75

K

Keep-Alive Delay – #KEEPALIVEDELAY 72
Keep-Alive Mode – #KEEPALIVEMODE 72
Keep-Alive Port Number – #KEEPALIVEPORT 72
Keep-Alive Server Address – #KEEPALIVESERV 72
Keys for WAP PSK Security Mode – #WPAPSKKEY 66
Keys for WEP128 Security Mode – #WEP128KEY 66
Keys for WEP64 Security Mode – #WEP64KEY 65
Keys for WPA2 PSK Security Mode – #WPA2PSKKEY66

L

Legacy Mode Enable/Disable – #LEGACYMODE 20
Load the WLAN Profile – #WLANPROFILE 64

M

Manual Answer of TCP or UDP – A 57
Mode of Operation – +WOPEN 70
Move Module out of Power Save – #WLANACTIVATE 65
Moves Module into/out of Power Save – #WLANDOZE=63

N

Number of PING Requests – #PINGNUM 44

O

Open a TCP Connection – #OTCP 40
Open Listening Mode – #LTCPSTART 39

P

PDP Context Identifier – #GPRSCID 80
Persistent Socket – #PERSISTENTSOCKET 21
PING Delay Time – #PINGDELAY 44
POP3 Header – #POP3HEADERMODE 31
POP3 Module Parameters – #VPOP3 33
Previous Command – A/ 57
Primary Dial-Up Number – #DIALN1 74

R

Received Signal Strength – #WLANGETRSSI 65
Release a DHCP Address Assigned by the Server – #IPRELEASE 55
Remote PPP Client Password – #PPPSERVPW 79
Renew the DHCP Information from the Server – #IPRENEW 55
Reset Factory Defaults – &F 18
Reset Main Processor at a Given Time – #AUTORESET 20
Reset Main Processor or Internal Modem – #RESET 21
Response Messages 98
Response Messages Examples 100, 101, 102, 103
Retrieve Host Mail – #GETMAIL 32
RLSD (DCD) Option – &C 18
RMC – Recommended Minimum Specific GNSS Data 95

S

S0= – Automatic Answer 55
Scan Wireless Networks – #WLANSCAN 64
Scanning Mode – #WLANSCANMODE 62
Secondary Dial-Up Number – #DIALN2 74
Security Mode of WLAN Module – #WLANSECURITYMODE 61
Send Mail to Recipient w/ Interactive Mode – #PUTMAIL 29
Send Mail without Interactive Mode – #SENDMAILi 28
Set Additional Recipient CC – #CCRECi 25

Set Address of Remote TCP Server – #TCPSERV 39
Set Answering Mode – #ANSWERMODE 71
Set AutoDiscovery Host Name – #AUTODISCHOST 50
Set AutoDiscovery Password – #AUTODISCPASSWORD 51
Set AutoDiscovery User Name – #AUTODISCUSERNAME 51
Set Default Dial Time AT Commands – #ATCMD 73
Set Default TX Key Index – #WEPKEYID 66
Set DLE Mode – #DLEMODE 38
Set DNS Server IP Address – #DNSSERV1 48
Set DNS Server IP Address – #DNSSERV1 54
Set Domain Name of the Sender – #DOMAIN 26
Set Email Address – #RECiADD 26
Set Email Pre-Defined Subject Text – #SUBJi 26
Set Ethernet Connection – #EMACSPD 48
Set Flow Control – +IFC 20
Set FTP Download File Name – #FTPGETFILENAME 35
Set FTP Password – #FTPPW 35
Set FTP Upload File Name – #FTPPUTFILENAME 35
Set Gateway Address – #IPGATEWAY 47, 53
Set GPS Host Login Password – #GPSPW 87
Set GPS Host Port – #GPSPORT 86
Set GPS Host Protocol – #GPSPROTO 86
Set GPS Host Server Address – #GPSSERV 86
Set GPS Message Prefix – #GPSPREFIX 86
Set GPS Server Transmission Interval – #GPSINTERVAL 87
Set GPS Unique Remote Asset Identification String Host Protocol – #GPSURAIS 87
Set Number of Rings – #RINGCOUNT 74
Set Path to Get Files from FTP Server – #FTPGETPATH 36
Set Path to Send Files to the FTP Server – #FTPPUTPATH 37
Set POP3 Password – #POP3PW 31
Set POP3 Server Address – #POP3SERV 31
Set POP3 Server Port – #POP3PORT 31
Set POP3 User Name – #POP3UN 32
Set Pre-Defined Email Combinations – #BODYi 27
Set Secondary DNS Server – #DNSSERV2 48, 54
Set Sender Address – #SENDERADDR 25
Set Sender Name – #SENDERNAME 25
Set Serial Speed – +IPR 20
Set SMTP Password – #SMTPPW 27
Set SMTP Server Address – #SMTPSERV 27
Set SMTP Server Port – #SMTPPORT 27
Set SMTP User Name – #SMTPUN 28
Set Static IP Address – #IPADDR 47, 53
Set Subnet Mask – #IPNETMASK 48, 54
Set TCP Port for Remote Peer – #TCPPORT 38
Set Telnet Password – #TELNETPASSWORD 60
Set Telnet Port – #TELNETPORT 59
Set Telnet User – #TELNETUSER 59
Specify Data Type – #FTPTYPE 34
Specify FTP Server Address – #FTPSERV 35
Specify FTP Server Address – #FTPUN 35
SSID of WLAN – #WLANSSID 62
Start Communication – #CONNECTIONSTART 77
Start PING Request – #PING 44
Start/Stop Telnet Session – #TELNET 59
Stop Communication – #CONNECTIONSTOP 76
Store Factory Defaults to NVM – &W 19
Switch Between GSM and GPRS – #GPRSMODE 80

T

TCP/IP Behavior – #PPPMODE 78
Terse or Verbose – V 17
Time Delay – #TCPTXDELAY 39
To Observe Whether There Is a Connection with DNS or Not – #IPRESOLV 55

U

UDP Port Number – #UDPPORT 42
UDP Server Address – #UDPSERV 42
UDP/TCP Local Port Number – #OUTPORT 40
Upload Files to FTP Server – #FTPPUT 36
User Name for Remote PPP Client – #PPPSERVUN 79
User Profile – #WLANUSEPROFILE 65

V

V – Terse or Verbose 17
View Address Settings – #VIP 49, 56
View Network Interface Settings – #ETHIFSTATUS 49
View Telnet Settings – #VTELNET 60
View the Values of WEP Keys – #WEP? 67
VTG – Course Over Ground and Ground Speed 96

W

Watchdog Timer – #WATCHDOGTIMER 58
WLAN Module – #WLAN? 68
WLAN Network Mode – #WLANNETWORKMODE 61
WLAN Transmission Data Rate – #WLANDATARATE 62

Z

Z – Default Configuration 18